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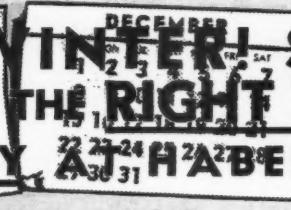
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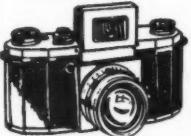
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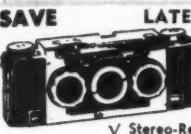
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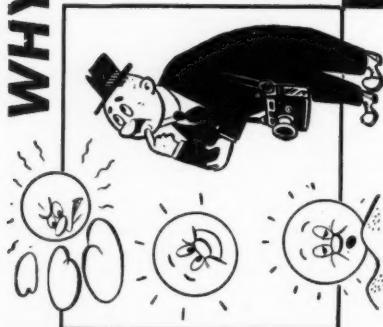
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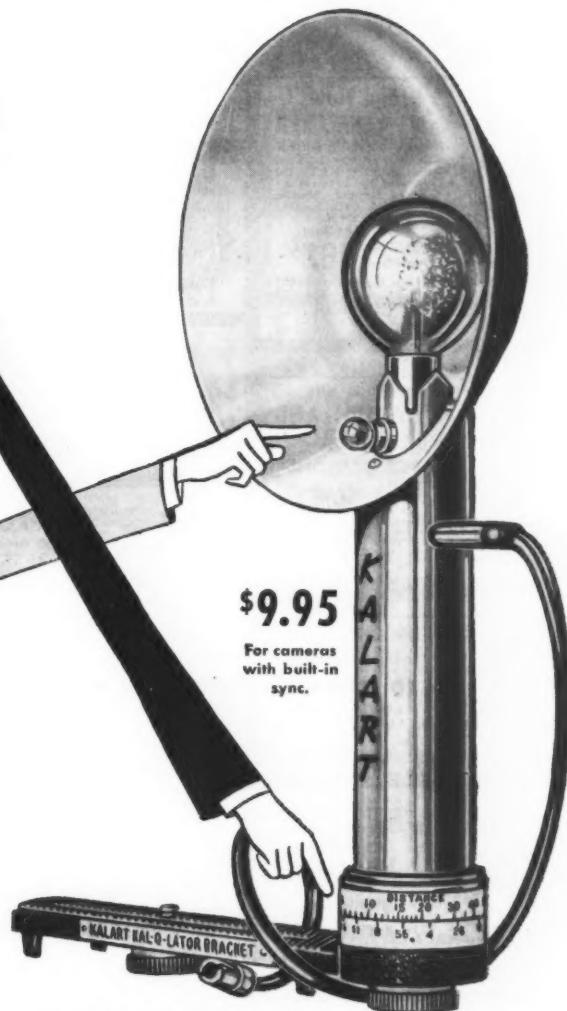


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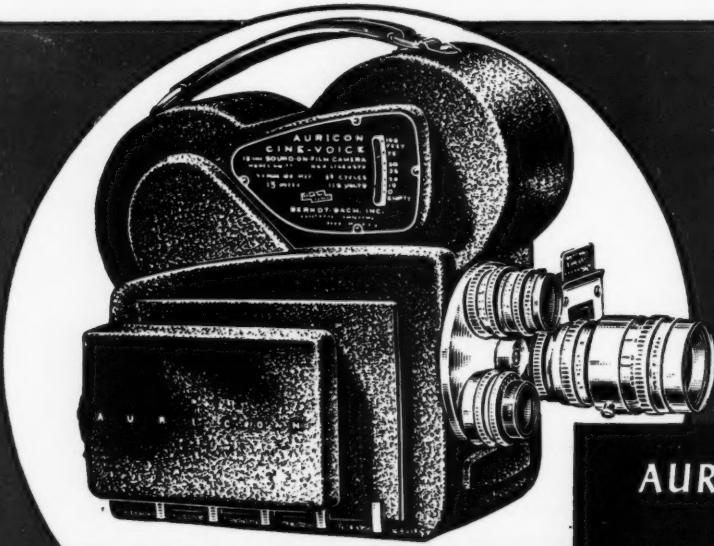
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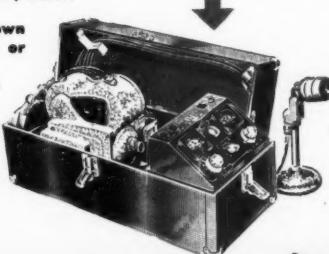
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the last word

Pie in the Sky

Sirs:

This photo was taken after reading your article *Don't Be Afraid* to take pictures of people you don't know



(May, 1953, page 60). It really was a candid shot, taken while the girl was eating pizza pie. I caught her unawares, with Rolleiflex at f/11 and 1/100 second.

New York, N. Y. Marvin Attias

On Storing Developer

Sirs:

One of my main problems in photography is storing the mixed developer solution. I have been keeping it in a sixteen ounce amber-colored bottle which has a metal screw-on top. I put the bottle in a steel ammunition box so the light cannot hit it, but the developer still looks as if it were exposed to light. Would it be better to use corks instead of screw-on tops for bottles? And what can I do to keep developer clear for a longer period of time?

Wilmington, Del. Michael Roshberg

First, throw away the metal bottle tops and get some plastic screw tops. Developer solutions are corrosive in their reaction on metals. Next, when you store solutions be sure the developer comes almost to the top, with only a small air bubble space to allow for contraction and expansion. It doesn't matter how tightly you have the bottle stoppered if it is only half full of solution. The air in the top half will cause the developer to oxidize. It's a good idea to have a couple of smaller bottles around. When you start to use developer out of the large bottle and there would be a large air space at the top, that's the time to pour off developer from the large bottle, fill up the smaller ones, leaving a small air bubble at the top, and cap them securely. This should make your developer last longer than it has been.—Ed.



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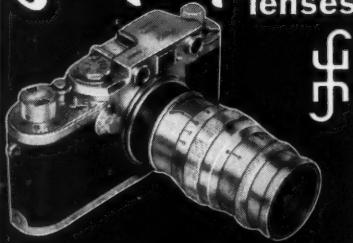
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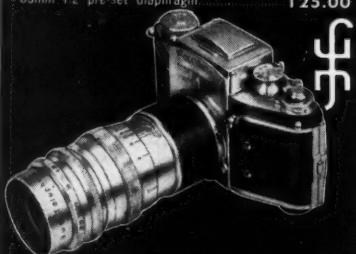
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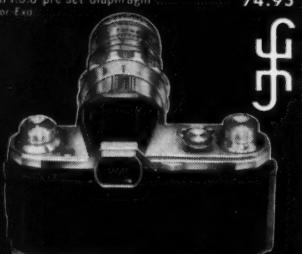
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COFFEE BREAK with the editors

THIS MONTH'S COVER • • •

Photographer John Stewart had an idea. Why not a cover using a human form as design in line and color? Why not indeed. He used a Rolleiflex with an f/3.5 Xenar lens, Ektachrome, Type B, and an exposure of f/5.6 at 1/2 sec. under 2,000 watts of light balanced for 3200° Kelvin. We think he has produced a graceful and unique result. Agree?

THE SEXY CAMERA? • • •

Cameras with sex appeal—that's the prediction for tomorrow from Dudley J. Scholten, vice-president and director of sales and advertising of Argus Cameras, Inc.

Mr. Scholten, interpreting a recent nation-wide survey which allegedly showed women, not men, dictating family camera styles, added "if fancy lace were in style, I wouldn't be surprised to see cameras on the market with crocheted borders."

"Even today," he continued, "the newest cameras show that manufacturers are following the producers of automobiles in designing their products to appeal to the feminine taste."

We shall look forward to the Argus cameras of the future with a different gleam in our eyes. We only hope that the designers do not go overboard and get their sex-appealing cameras banned in Boston for overexposure.

BANZAI • • •

When word got around that N.Y.'s Hudson Park Branch Library planned to give another photographic exhibition in their Little Gallery (actually a large, separate room) pictures came in by the hundreds. Branch Librarian Mrs. Alice Vielehr went into a huddle

with advisors, came up with a show containing work of ten different photographers—most of whom shoot people with great perception.

One of these was Harold Feinstein, frequent contributor to MODERN, now in Korea as an Army photographer. While his pictures (including the shot shown here) were being exhibited at the Library, Feinstein also walked off with another honor.

Every year for the past seven, N.Y.'s Village Art Center has held an Annual Photographic Show. This year Feinstein took one of four top awards. Moreover his photographs will form part of a group show to be held later this year.

WANTED: PICTURES • • •

At least twice a day the mailman brings packages of pictures to our office. There are single photographs, picture stories, illustrated manuscripts, and entries for *I Tried It Myself*, MODERN's monthly contest. But only rarely do we get any pictures showing the interesting camera club activities which are written up in the many camera club bulletins which reach our desks. These describe participation in community goings on, interesting programs and field trips—new answers to old club problems. But where are the pictures? If they're around, why not send them in? If not, get busy with your cameras and aim for the \$10 we will pay for each photograph we can publish.

Prints should be at least 5 x 7 and be addressed to the Camera Clubs Editor. Don't forget to include caption material. And when shots are sent in by a club officer be sure that the

(Continued on page 18)



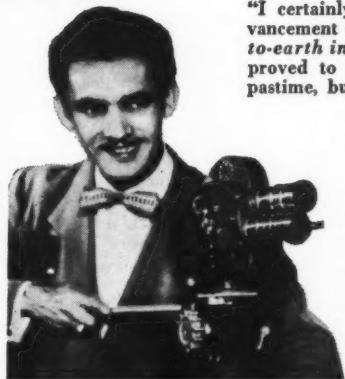
When a photographer's absent, his pictures speak.

BY HAROLD FEINSTEIN

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Carlos Lopez
Baton Rouge, Louisiana



"This national prize-winner, 'Land Of The Free,' has been published in several magazines, as well as in various international journals. The professional techniques NYI taught me made it all possible."

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MODERN PHOTOGRAPHY

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PRISM — FULLY COATED
ALL METAL CONSTRUCTION
ALL COMPLETE with
LEATHER CASE & STRAPS



YOU SAVE \$52.00!

7 x 50 BINOCULAR

* Fully Coated Prism & Lenses
* Complete with Leather Case
List 25⁹⁵

7 x 50 Binocular — Central Focus—List 86.95... 28.95*
6 x 30 Binocular — List 59.95... 19.95*
6 x 30 Binocular — Central Focus—List 65.95... 21.95*
8 x 30 Binocular — List 65.95... 21.95*
8 x 30 Binocular — Central Focus—List 71.95... 23.95*

SAVE \$54.00!
BRAND NEW
7 x 35
Bush & Lamb Type
BINOCULAR
List 26⁹⁵*

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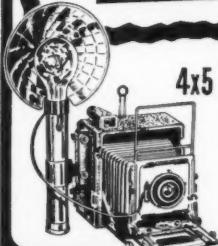
SPECIAL! 6 x 15 PRISM Glass Compact List 11.95*

*Plus 20% F.E.T.

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WHAT DO YOU NEED? . . . Whether it be a new or used camera or the smallest accessory . . . whether it be anything photographic . . . PEERLESS has it in their gigantic assortment — THE WORLD'S LARGEST! Whether you buy outright or trade your present camera PEERLESS prices will afford you greater savings!

And . . . if you don't see it on this page . . . write for it . . . we have it . . . and at prices that made Peerless famous!



SAVE \$74.00! BRAND NEW
4x5 Pacemaker GRAPHIC Outfit

with 135mm f4.7 Ctd. Lens

- Compur Synchro X Shutter
- Coupled Kalarf RF — Installed
- 3-cell Press Gun, Reflector, Cord, Solenoid — Installed

List \$253.50

179⁵⁰

Ship. Wt.
10 Lbs.

SAVE \$25.50! USED!

ARGUS C3 Outfit

CAMERA • CASE • FLASHGUN!

- Coupled Rangefinder
- Speeds to 1/300 Sec. Synchro
- Clip-on Flash Unit & Genuine Leather Eveready Carrying Case

List \$69.50

44⁰⁰

Ship. Wt.
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Save \$94.50! Brand New! Discontinued!

Zeiss CONTESSA "35"

T-Coated f2.8 Tesser Lens

- Calibrated in Meters
- Flash Shutter
- Built-in Exposure Meter
- Built-in Combined Rangefinder/Viewer

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119⁵⁰

Ship. Wt. 5 Lbs.

SAVE \$83.05! BRAND NEW!

SPECIAL PURCHASE EPCO LM-300

ELECTRONIC FLASH UNIT

- with Battery
- All "X" Shutters
- AC-Battery
- 50,000 Flashes Guaranteed

List \$123.00

39⁹⁵

Ship. Wt.
12 Lbs.

SAVE \$95.50! BRAND NEW

KINE EXAKTA V f2 Ctd Zeiss Biatar Lens

- Built-in Flash for Strobe and Regular Lamp
- Self-Timer

List \$325.00

229⁵⁰

Ship. Wt.
5 lbs.

Eveready Carrying Case . . . Only \$12.00

Just Out! Our Exclusive

RIVAL Condenser ENLARGER

35mm to 2 1/4 x 2 1/4

Priced at a low . . .

Save \$32.70!

Equal to Enlargers Selling for \$100.00

List \$59.45

Look at These Expensive Features:

Width: 2" x 4.5" RIVAL Lens

+ Condenser Assembly

And: 1" x 75 to 250 Watt Lamp

+ Sturdy Basebed

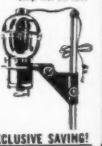
+ Built-in Bellows for Distortion Control

+ Built-in Red Filter

ANOTHER PEERLESS EXCLUSIVE SAVING!

26⁹⁵

Ship. Wt. 20 lbs.



SAVE \$33.80! USED!

'PICTURE IN A MINUTE' SENSATION

POLAROID

• Coated Lens

• Built-in Flash Sync.

• Easy to Load—Easy to Use

List \$89.75

55⁹⁵

Ship. Wt. 7 lbs.

AN UNUSUAL PEERLESS VALUE!

2 1/4 x 3 1/4 ANNIVERSARY

SPEED GRAPHIC

PRESS OUTFIT

14.5 Kodak Lens

• Coupled Kalarf Rangefinder

• Synchro Flashgun

USED AT 99⁵⁰

Ship. Wt. 12 Lbs.

Used At 20⁹⁵

Ship. Wt. 15 lbs.



SAVE \$106.83!

Latest Model BOLEX H16

16mm Turret MOVIE CAMERA with 3 BRAND NEW LENSES!

THE 3 LENSES

• f2 Coated 11.5 Aster

• f2 Coated 13.5 Aster Telephoto

• f2 Coated 19.5 Aster Telephoto W.A.

List \$268.33!

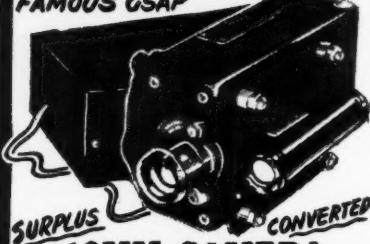
Used At 20⁹⁵

Ship. Wt. 15 lbs.

Used At 20⁹⁵

SAVE UP TO 60%
10 DAY FREE TRIAL MONEY BACK GUARANTEE

FAMOUS GSAP



SURPLUS

CONVERTED

16MM CAMERA

A modernized conversion of the famous "Gun Camera" still in use today by the Navy and the USAF. Now an ideal camera for the amateur or professional movie maker. The lens mount has been adapted to take all standard 16mm lenses (in C-mount). Uses regular Eastman (50 ft) magazines. Has easy adjustment for 3 SHUTTER SPEEDS - 16, 32 and 64 frames per second. Gives normal, semi-slow and slow motion. Requires no winding. Operates electrically & runs continuously on ordinary flashlight batteries (24 volts). Batteries are easily carried in box that clips to belt. Takes beautiful pictures in B&W or Full Color. Comes complete with a ZOOM range-finder & battery box.

59.95
LESS LENS

FILM (SOFT) B&W-\$3.00 Batteries (set)-\$1.79
ELGEET LENS - for camera above - One of the finest imported lenses on the market. Has focal length of 25mm, speed of f:1.9 and full focusing mount. Ideal for indoor or outdoor use. \$56.75
(credit terms available on camera & lens above)



NEW
PHOTINA
REFLEX CAMERA
Only
22.50
WITH CASE

One of the latest imports from a famous German optical company. A compact, simplified camera everyone can use. Pro-

duces clear, sharp pictures in B and W or Full Color. Has a coated, Acromat, f: 9 lens with shutter speeds of B, 1/30 & 1/100 seconds. Will focus from 4½ feet to infinity. Shutter has f-stops of 9, 11 and 16. Film wind automatically cocks shutter, preventing double exposures. Has reflex focusing on ground glass with integral sports view finder. Depth of focus scale on lens barrel. Visible exposure indicator. Study, all metal body and built-in flash synchronizer. Takes standard No. 120 roll film.



2-WAY DARKROOM **TELEPHONES**

These handy, desk type telephones provide perfect, two-way communication from your darkroom, home, office, shop etc., to any other point up to a DISTANCE OF 100 FEET. Precisely built to give a clear, audible tone. Signal bell can easily be heard. Has a "talk" and "ring" circuit. Each set consists of two phones, ample wire and complete hook-up instructions. Operates on ordinary flashlight batteries. Comes in **79.95** per set. Lustrous, Blue enamel finish.

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Los Angeles 58, Calif.

COFFEE BREAK

(Continued from page 14)

maker's name is on the back of each print so his name can appear in the magazine caption, along with that of his club.

AND IT WAS SIMPLE . . .

Happy is the publicity department that can sit back in its chair, put its feet on a desk and dream up such information as the following about photographer Philippe Halsman and his pictures for Marlboro Cigarettes. We wouldn't ordinarily pay much attention to it but the opening sentence of the press release addresses itself to amateur photographers—and some professionals who wonder if there is any great future in picture taking. So as a public service.....



Offer something different

Halsman, according to the release was approached for "something to arrest attention, inspire the inquisitive instinct, and unfurl the public's cautious purse strings." His difficulty lay in getting models. He is quoted as saying:

"The first step was the choice of appropriate models, a particularly difficult task because of the unusual requirements. Professional male models were, on the average, too handsome, too athletic, or their facial proportions were a cut too standard.

"For my first picture, I chose an elderly gentleman with a distinctive face. The only prop used was an expensive ring. (see illustration)

"My second male subject could have been a . . . serious newspaper columnist or a sports broadcaster. They . . . have a certain look . . . which illustrates . . . they are men who have a finer appreciation of better quality products and are willing to pay a little more for it. It's difficult to define, but it's a quality that doesn't appear in any ordinary face."

"So camera fans," concludes the release, "take a lesson from Philippe Halsman: if you can offer your public something more than ordinary run-of-

the-mine shutter-snapping, there is a future for you in photography."

We don't know whether this is a direct insult to mining photographers but we caution them not to light a Marlboro in a coal chute while attempting to unfurl the public's cautious purse strings.

EXCELSIOR . . .

Herewith is reprinted an ad which appeared in a British photographic publication, followed by a press release which originated on this side of the Atlantic:

"Our heartiest congratulations to the successful British Everest Expedition on their conquest of the world's highest peak. This year, as in the 1951 Reconnaissance Expedition, Ilford HP3 and FP3 roll films; Ilford HP3, FP3 and Pan F 35mm films; Ilford Colour Film "D" and Ilford Advocate cameras were used by the climbers. We are proud to be associated with so magnificent an achievement."

Now the press release

"We would like to supplement our release of last Friday relative to the fact that a Kodak Retina IIA Camera and Kodachrome Film were used in making pictures atop Mount Everest.

"We have just been notified that all other cameras used by other climbers who reached 28,000 feet were also Kodak Retina Cameras."

THE SCIENTIFIC APPROACH . . .

We welcome a new contributor to MODERN this month. Lew Gust has what is probably the largest collection of sub-miniature cameras in the U.S. While most sub-miniature fanciers look upon their cameras as a sort of snapshot playtoy, it's Mr. Gust's contention that many are scientific instruments which represent the size of things to come. What he has to say about them starts on page 52.

Lew Gust is no stranger to the scientific end of photography. He has been a Photographic Consultant to the Air Force and O.S.S. He's an active member in the Society of Photographic Engineers and has done research in optics stereo, photographic chemistry, sub-miniature camera design, phosphors, micro and macrophotography and other allied subjects. At present, he's a photographic consultant on the West Coast.

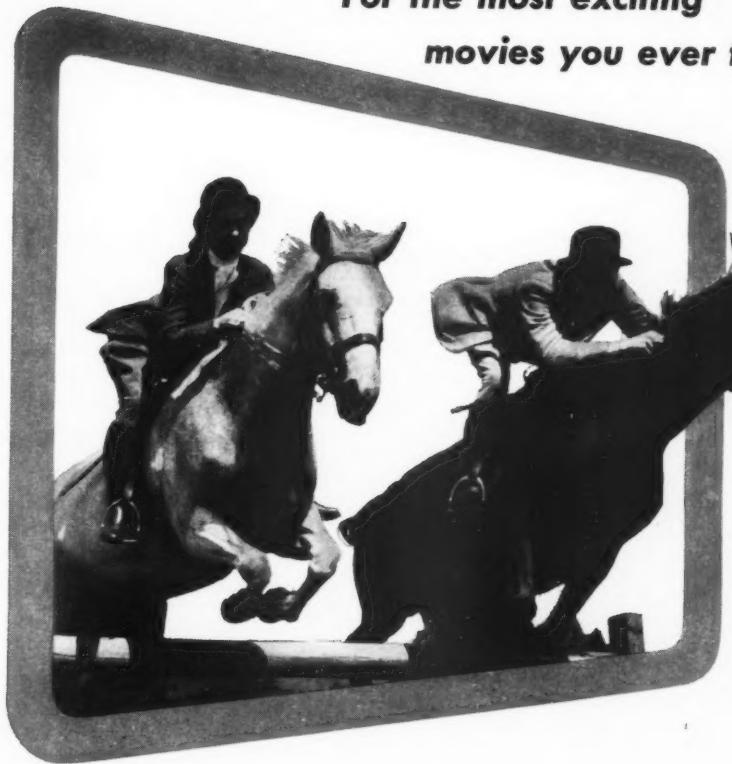
COMING NEXT MONTH . . .

- *Color photographs, photograms, solarizations.* All perfected by Edward Gallo. Also full information on how any amateur with a good darkroom can perform like experiments.

- *Enlarging 35mm negatives.* An outstanding professional enlarging technician demonstrates the proper methods to get the most from your negatives.

- *Lou Stettner portfolio.* A leading proponent of the 35mm camera shows what can be done with the miniature camera and the thinking behind each photograph that he makes.

**For the most exciting
movies you ever took**



You'll take startlingly realistic 3-dimensional movies on your first roll of film with the new Elgeet Cine-Stereo System.

It's as easy to use as your normal lens—just mount the lens on your camera, set the lens opening as usual, and you're ready to shoot.

The Elgeet Cine-Stereo System is easy to own, too. For only \$249.50 you get everything you need for the most exciting movies you ever made—camera and projection lenses, screen, view finder, and polaroid glasses.

The fast f/2.8 6-element taking lens is fully color-corrected and hard-coated for brilliant pictures with microscopic definition and remarkable depth. A Rhomboid prism assembly makes it impossible for one image to be out of focus with the other. And, it's universal focus...with a range of focus from 5 feet to infinity.

The twin f/1.6 projection lens system has polaroid segments built in, can be precisely focused. Adapters permit use on all standard 16mm projectors.

You don't need to wait any longer for a professional quality stereo system at a moderate price. See the new Elgeet Cine-Stereo System at your dealer's now.

the New

Elgeet

CINE-STEREO

SYSTEM

for 3-D 16mm

movies

*Easy to own! . . .
Easy to use!*



PRICE \$249.50*

(includes taking and projection lenses, 26" x 34" screen, view finder, 2 pairs of glass polaroid glasses and 6 pairs of paper polaroid glasses)

\$259.50 for Bolex and Bell & Howell 70 Series cameras.

Elgeet

OPTICAL COMPANY, INC.
834 SMITH STREET • ROCHESTER, N. Y.

"Makers Of The World's Finest Lenses"

New adventures ahead...



Each new picture subject presents a challenge — to you and your camera. Perhaps in your case your ambitions have already outrun the ability of your present camera. If so, the HASSELBLAD might well be your next choice.

Precision-crafted in Sweden, it offers basic engineering advances that can greatly extend your picture-taking range. Whatever your special interests may be there are new adventures ahead for you and your HASSELBLAD.

The illustrations below suggest some of these.

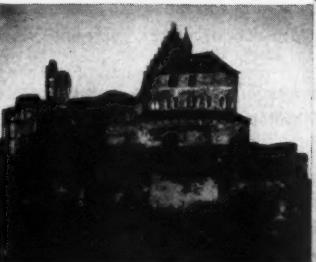
PRICE — The camera, with 80mm Kodak Ektar f/2.8 Lens and roll-film magazine, \$ 499.50, including Federal Tax.

NATURALISTS
will like the close-working sharpness of the Ektar f/2.8 Lens... focusing down to 20 inches... or to full scale with extension tubes... and with no worry about parallax.

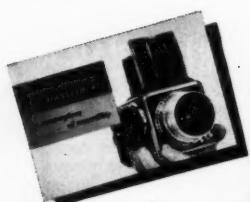


ILLUSTRATORS
will appreciate the interchangeable film magazines... permitting a switch from one film to another, color or black-and-white... even in the middle of a roll.

PHOTO-REPORTERS
will be quick to exploit the dazzling 1/1600 top speed of the HASSELBLAD... excited at the ability to freeze action at angles too difficult for slower shutters.



TRAVELERS
will thrill at the reach of the long-focus lenses that bring distant, inaccessible subjects into working range... thanks to the HASSELBLAD'S interchangeable lenses.



Write for the free
HASSELBLAD booklet to

Willoughbys

Dept. M., 110 West 32nd Street, New York 1, N.Y.



HASSELBLAD
THE $2\frac{1}{4} \times 2\frac{1}{4}$ "
SWEDISH REFLEX CAMERA

BIG VALUE!

Looking around us

I have found, in my many years in the photographic business, that there are many interesting and colorful stories connected with the names manufacturers give their cameras. One of the most fascinating tales concerns the legendary figure called Perkeo.

Now, Perkeo was a dwarf, a very jolly fellow, who lived during the Baroque period. He was discovered in Austria and brought to Heidelberg by the Electors and given the position of court jester and guard of the wine cellars in Heidelberg. This was the most wonderful thing that could have happened because if there was one thing Perkeo liked better than one bottle of wine, it was 18 bottles of wine — for his daily ration was just that . . . 18 bottles of wine. During his lifetime, it is said, he consumed the entire contents of two huge barrels of wine, one containing 11,900 gallons and the other, 58,200 gallons. These two barrels are still in existence, and may be seen in Heidelberg Castle.

Perkeo died in Dusseldorf, but he still lives on. For he is a symbol of the joyous spirit in Heidelberg, and is remembered by a clock that still rings the time in the castle, and in a student's drinking song sung to this day. And he is remembered in yet another way, for Voigtlander has chosen to call one of their most popular cameras the Voigtlander Perkeo. There are two Perkeo models — Model I and Model II — and both of them have tens of thousands of friends. The moderate prices of these quality cameras coupled with excellent performance make them a joy to own and use.

J. G. Willoughby
President—Willoughbys

Willoughbys

WORLD'S LARGEST CAMERA STORE
110 West 32nd Street • 113 West 31st Street
New York 1, N. Y. • LOngacre 4-1600

OCTOBER, 1953

PLEASE SAY YOU SAW IT IN MODERN

THE FAMOUS *Voigtländer*
PERKEO I
2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ FOLDING CAMERA



Made to sell for
\$49.50

Now
\$39.50

Carrying Case \$6.50

Perfect for Color and Black-and-White

Smart in appearance, with streamlined chrome-finished body, the Perkeo I is equipped with Vaskar f4.5 lens in Pronto Shutter and takes twelve 2 $\frac{1}{4}$ x 2 $\frac{1}{4}$ COLOR or black and white pictures on 120 film. It has many features including:

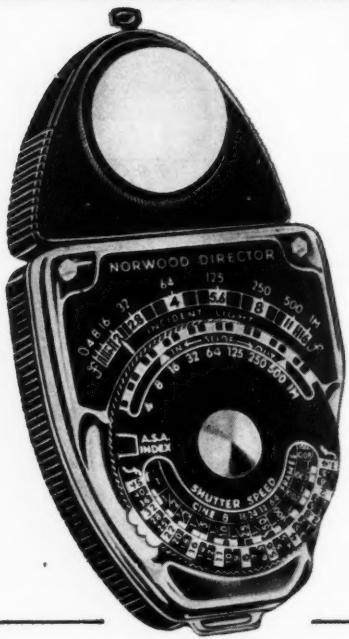
- All operating controls conveniently located for quick, comfortable picture taking.
- A locking device to prevent double exposure.
- Flash contact and self-timing device.
- Body release. Coated lens. Depth-of-field guide.

Mail orders filled. Add postage.

New Model!

NORWOOD Director

EXPOSURE METER



Acclaimed as the Simplest Meter to Use for Color Pictures:

1. Insert the "Color-Matic" Slide
2. Set your camera for 1/50th second
3. Point the meter at the light source
4. The needle immediately indicates the proper "f" stop for perfect color exposure

You don't have to set for film speed — you don't even have to use or look at the computer dial when shooting color. You merely note the "f" stop indicated when the needle comes to a stop — and then you shoot with confidence.

Mail Orders Filled.
Add Postage.

**With the Exclusive "Color-Matic" Control
... for Simplified Direct-Reading!**

Twice the accuracy . . . half the effort

Now the Norwood Director Incident Light Exposure Meter is more versatile than ever before . . . is as easy to read as your watch, and is as accurate as Naval Observatory Time. For stereo color, for still color or black-and-white, for movie color or black-and-white — for each and every type of photo activity — the Norwood Director is unsurpassed. In addition to the "Color-Matic" feature, this new model has a new dial, with larger, more legible figures—no squinting or close peering necessary. Remember, too, that the Norwood Director is the only true INCIDENT LIGHT exposure meter . . . with its patented PHOTOSPHERE, it gathers all the incident light falling on the subject, and gives you a true reading, quickly and easily.

Stereo Fans!

With its three-dimensional PHOTOSPHERE, in addition to "Color-Matic" Control, this new meter is ideal for your requirements. It is not only the most versatile meter, but also the simplest and most accurate instrument of its kind now available.

Still only **\$32⁹⁵**

complete with Photosphere, Photo-grid, Photodisk—Plus "Color-Matic" Control.

Willoughbys

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PLEASE SAY YOU SAW IT IN MODERN

MODERN PHOTOGRAPHY

behind the scenes

news of the photo industry

Photokina 1954

The international photographic show known as "Photokina" will be held in Cologne, Germany from April 3 to 11, 1954, according to recent announcements. It was not held this year although it was staged in 1950, 1951 and 1952.

Exhibits of the latest photographic equipment plus galleries of photographs, all of international flavor, will cover nearly 500,000 square feet of the huge Cologne Fair Halls. If you're in the vicinity, you might drop in. If not, MODERN will have a correspondent to cover it for you.

From trains to stereo

The Lionel Corp., long famed for its model electric trains, is slated to enter the 3-D field shortly with a radically different stereo camera and viewer, the whole package to sell for under \$40.

The camera itself is 6 in. wide, $3\frac{1}{2}$ in. high and slightly more than an inch thick. It features matched fixed focus doublet lenses with a choice of two small apertures. The nearest point of sharp focus is said to be slightly over five feet.

The behind the lens shutters are of a simplified single speed guillotine type and must be cocked via a small lever on the front of the camera.

The 23×24 mm frame adopted by a majority of stereo camera manufacturers will not be used in the as yet unnamed Lionel camera. Instead special film magazines of unperforated 16mm Ansco Color will yield eight stereo pairs in a $\frac{1}{2}$ in. x $\frac{3}{8}$ in. vertical format. The film magazines in both daylight and tungsten-types will be available at film counters for \$1 apiece which includes processing. When the film is returned, it is mounted in clear plastic slides which hold four stereo pairs.

The viewer is of plastic and metal. The optical system and electrical illumination via two small batteries is said to yield a magnification comparable in size to that obtained in a standard 23×24 mm viewer.

The camera, viewer and waterproof plastic carrying case are packaged in a box specially designed by Raymond Loewy to be used for storage of viewer and slides. A flashgun will also be available for about \$7.

Distribution plan

A general distribution plan has been thought out carefully for the introduction of the complete stereo package and service facilities. Lawrence Cowen,

(Continued on page 26)

To FREEZE Action OR CAPTURE SCENIC BEAUTY



To hold the detail and tone values that make an action shot "sing", calls for more than fast shutter action. It requires a camera of fine optical quality!

This explains why advanced amateurs and professionals show a marked preference for Zeiss Ikon cameras.

Here are two popular models which you will find very versatile. Both feature the incomparable Zeiss Opton Tessar f/3.5 lens in fully synchronized Synchro Compur shutter with speeds to 1/500. Coupled to lens is a super accurate rangefinder, insuring sharp negatives for splendid prints and enlargements.

Easy to carry, light and compact—and ready for action at the touch of a button.

At authorized Zeiss Ikon dealers.

Write for literature

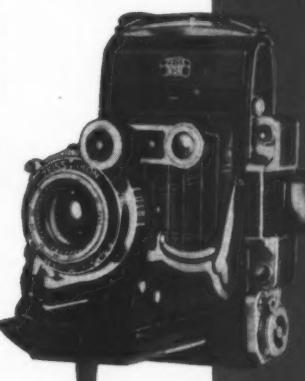
CARL ZEISS, INC.

485 Fifth Avenue, New York 17, N. Y.



Super Ikonta A

16 pictures $1\frac{1}{8} \times 2\frac{1}{4}$ "
on a roll of 120 film.



Super Ikonta C

the duplex camera
8 pictures $2\frac{1}{4} \times 3\frac{1}{8}$ " or
 $16 1\frac{1}{8} \times 2\frac{1}{4}$ ".

for your PRAKTICA, CONTAX S, D, DA, PRAKTFLEX FX, PENTACON

FOCUSING EXTENSION TUBE \$9.95

Operating like the focusing tubes of a lens, these tubes allow a range of 20mm, with no blind spots. Leica tubes are often used to indicate proper distance from lens to subject. Focusing tubes can be used alone or, if you already own a set of tubes, you'll find the focusing tube a most valuable addition to your close-up equipment.

Save Up to 50% LENS CAPS \$1. aluminum screw-in.

State lens you have: Tessar f:3.5; Tessar f:2.8 preset diaphragm; Biatar f:2; Biatar f:2 preset diaphragm.

NECKSTRAP w. locking swivels 1.25

FOCUSLUX, produces split-image viewfinder effectively installed on ground glass.

Write for Newsletter on Praktica, Contax S accessories—it's free!

Protect your lenses with PLUSH-LINED LEATHER CASES

Made of the finest German leather, these cases provide the protection which your lenses need and deserve. Cases can be attached to carrying strap or carried in gadget bag. For 40mm, 50mm lenses \$3.95. For 58mm lenses \$4.95. For 75mm lenses \$4.95. For 90mm lenses \$4.95. For Retofocus \$4.95. For 135mm lenses \$5.75. Shipping Costs 25c.

Focusing Tube, Lenscaps, Neckstrap, Focussix, Bellowscope Jr., Minus Lenses, Filterholders and Telephoto Lenses (add \$10.00 for Retofocus Finder or V, VX) are also available for the Kine Exakta. Prices shown are current to ask for free booklet on "Best Values in Lenses and Accessories for the Kine Exakta". Booklet contains lens coverage diagram, extension tube tables.

BELLOWSCOPE JR. \$19.95

Here is the latest and most practical bellows extension unit for 35mm cameras—at the lowest price. Designed along the lines of a double extension bellows camera, it extends to a full 8" yet folds to almost the size of a 35mm camera. Leather bellows double curved track, all metal construction. Bellowscope Jr. accommodates any lens from camera for which it is made.

Shipping Cost 5c

Four Piece EXTENSION TUBE SET

for Praktica, \$6.95

Praktiflex FX,

Contax S

In response to

popular demand

Sh. Cat. 260
here is this four piece set made to include, in addition to the usual 5mm, 15mm and 30mm tubes also a 45mm tube, permitting almost 2X magnification. Tubes are all metal, can be used individually or in any combination or with focusing tube (\$9.95 additional). 45mm tube alone (to fit your present sets) \$2.49.

MINUS LENSES

for telephoto effects

In conjunction with your bellows unit or extension tubes, minus lenses will give you added telephoto effects. A Minus 4 lens will make a 135mm lens into a 270mm lens! Use several Minus lenses in conjunction with each other for varied effects. Available in Minus 1, 2, 3 and 4—selected for Kine Exakta (see page 3); Series VI \$6.95, Series VII \$7.75, Series VIII \$8.00. Shipping Cost 10c.

Screw-in FILTERHOLDERS

50mm f:3.5 Tessar, Ser. V \$1.25
50mm f:2.8 Tessar, 1.05
preset diaphragm 1.05
50mm f:2 Biatar, 1.05
preset diaphragm, Ser. VI 2.95
50mm f:2.8 Primopan, Ser. VI 3.25
50mm f:2.8 Retinar, Ser. VI 3.25
50mm f:2.8 Meritar, Ser. VI 1.25
Lanashades to fit: Ser. V \$1.25; Ser. VI \$1.50; Ser. VII \$2.00.

Shipping Costs 25c.

EYELEVEL PRISM FINDER

FOR YOUR PRAKTICA, \$17.95

PRAKTFLEX FX

Makes Praktica

into rapid-shooting camera

also a great help in macro and

micro photography. Ingenious

rooftop principle shows un-

reversed, right-side up image

Prices of lenses below include

your selection of one of the fol-

lowing: Prism Finder or Bel-

lowscope Jr.

Coated, color-corrected

TELEPHOTO LENSES

with postal diaphragm feature

Select one of these es-

pecial new lenses ac-

claimed by experts as

the very best. Each lens

is built with helical focusin-

g and focusing mount, with depth of

field scale engraved.

100mm f:3.5 Plasker, a popular Ger-

man lens listing alone at

\$10.00.

135mm f:3.5 Sun, not only super-

performer but now in an elegant

finely finished satin-finish bar-

barrel, just right for moder-

ate telephoto and portrait work.

90mm f:4.5, lightweight, depth of field

scale, a favorite all-around

telephoto lens.

135mm f:3.5, the favorite telephoto

lens of many Kine Exakta owners;

preferred by many users to any other

135mm lens, regardless of cost.

Leather Cases: \$3.95, \$4.95,

\$5.75 respectively.

90MM WIDEANGLE for PRESS CAMERAS \$19.95

In famous Prontor synchro shutter Commercial photographers and advanced amateurs alike have waited for just such a buy! Made by Leitzmayr, an old-time German optical manufacturer, this fine f:2.8 coated wideangle anastigmat is for the press camera owner just what the doctor ordered. It converts any camera to a 90 degrees and one half of the lens can be removed, converting it into a telephoto double the original focus length. The popular shutter has eight speed and B; delayed action and built-in flash. Shpg. Cost. 35c. Lensboard, with proper opening, for speed Graphic, \$2.00. Bush. \$2.40. State model.

Famous Make 2 1/4 x 3 1/4 CONDENSERENLARGER Complete with bulb and lens \$19.95

You may have missed some fun not doing your own enlarging sooner, but you surely did right in getting this one. Well balanced, with built-in lamphousing and red bellows, with easy-to-strip focusing knob—built-in red filter—sturdy 13" x 16" baseboard—22" pole permits up to 5x linear magnification on baseboard, virtually any size, linear or negative projected onto lower level—2 1/2" x 3 1/4" negative can be cut 1/4", 1/2", 3/4", 5/8", 7/8" and 1" sizes. All lenses are coated. Shpg. Cost. 40c. Lens available at \$9.00 addn'l. Lensboard \$1.00 addn'l. Shpg. Cost. 10c. Lens \$1.00 addn'l. Lensboard \$1.00 addn'l.

Time Exposure & Delayed Action Now Added to Every AUTOKNIPS II \$2.95

This most popular of all self timers in conjunction with a cable release, adds to your camera a feature many a photographer has paid a small fortune for: 1/1 slow speeds from 1/2 a second to ten seconds! Was \$4.95. Ship. Cost. 10c. CABLE RELEASES: 4" 25c, 7" 35c, 10" 45c.

THREE UNIT REFLECTOR OUTFIT

Two aluminum 10" reflectors for #1 or #2 bulbs, one bullet reflector for #3, plus a three piece tripod with swivel joint, switch, socket, clamp and cord—at a fraction of their usual cost.

SUGGESTION: 2 #2, 1 #1 photo flood bulbs 80c. Ship. Wt. 5 1/2 lbs. Free on request with \$5.49 or \$6.49 outfit: Shutter Speed Tester

Only Spiratone offers you this \$11.00 PHOTOLOAD STAND FOR TWO REFLECTORS ONLY \$6.49

The ideal Indoor Lighting Set-up 3-section metal stand extends to 6'. Sturdy, balanced with wide base. Stand telescopes compactly to only 2 feet. Perfect lighting at any desired height, 22" crossbar. Can also be used to hold screen, backgrounds. Two spun-aluminum 10" reflectors (for #1 or 2 photo floods), complete with sockets, switches, 6' cords, ball-socket swivel joints, rubber-jawed stands, etc., be used on crossbar or furniture. Complete with bulb, 6c. Shipping Costs 25c. Shipping Weight: Stand 4 lbs., Reflectors 4 lbs. Suggestions: Two #2 photo flood bulbs \$6.66 Extra Clamp-on bulb with bulb (for semi-spot) 1.79 Photo load Stand with Crossbar only 3.49

8MM-16MM ACTION EDITOR \$29.95

The best value ever offered! Prism-operated projection action editing viewer shows your movies in full motion—either on a projector or direct from a 2 1/4" x 3 1/4" is projected onto the built-in groundglass screen—not just one frame at a time, but continuous motion. Operator can adjust focus to his own vision. Easy to thread, scratch-proof, scientifically ventilated lamphouse. PLUS an automatic dry-splicer with built-in safety device, plus a built-in motor with machined gear reductions with Anserts controlled drag brakes and 1200 ft. capacity (also worth \$7.50)—all mounted on a sturdy board for the low, low price of \$29.95. Ship. Wt. 10 lbs. State if 8 or 16mm Action Editing Viewer Alone (specify 8mm or 16mm) (\$hipping Weight 6 lbs.) \$19.95

Unbelievable Savings on Coated, Color-corrected 8MM TELEPHONE—WIDEANGLE PACKAGES

PACKAGE A 1 1/4" f:1.9 3X focusing telephone (clickstop, depth of field scale), plus 8mm f:1.9 extreme wideangle (six elements, clickstop, depth of field scale) \$59.95

PACKAGE B 1 1/4" f:3.2 3X focusing telephone, plus 8mm f:1.9 3X extreme wideangle... \$49.95

PACKAGE C 1 1/4" f:3.2 3X universal focus telephone, plus 8mm f:1.9 4X wideangle (clickstop, afterholder) \$35.95

BONUS! On request with any "package"— 1" f:3.5 2X telephone, at no extra cost.

Above Spiratone lenses have 'D' mounts, fit virtually all Reverses (except 50, 55), Keystone, DeJur, Kodak Reliant Cameras.

6MM f:1.9 WIDEANGLE LENS alone \$20.95 7MM f:2.5 WIDEANGLE LENS alone \$19.95

PRIVATE BRAND 8mm COLORFILM \$2.69 RELIABLE FRESH Available in Daylight (ASA 10) and Tungsten (ASA 16) types. Excellent processing service included. Standard Kodachrome conversion filters may be used.

25 ft. Dbl. 8 oz. \$2.69; 4 for \$9.95 25 ft. Dbl. 8 Magazine \$3.49; 3 for \$9.89 Shipping Cost each 5c

FOR COLOR FOR BLACK and WHITE

Spiratone

AUXILIARY TELEPHOTO

WIDEANGLE PROVEN LENSES A MUST FOR

35m

BRAND NEW FEATURES NOT AVAILABLE BEFORE

Telephone Finder Mask, supplied free of charge with every lens, for every non-reflex 35MM camera.

All lenses furnished with either built-in or separate afterholders (save \$1.25 or more per lens!), interchangeability of adapters, so that one lens may often be used on several different cameras.

Scientifically designed means of attachment to any camera lens to camera—every adapter expressly fitted for your camera.

If you wish to purchase a lens or set of lenses to be used on two or more cameras, write us what your requirements are and we will furnish you with that model which can be adapted for use with your particular cameras. Each lens is furnished for use with one camera only. Additional adapters are \$1.25 each. Shipping cost, for 1 lens 25c for set of lenses 50c

FREE 12 Page Bulletin Tell All About Auxiliary Lenses, Write for It

Universal PHOTO BLOWBRUSH \$1.20

Bills while you brush. The ultimate in cleansing your negatives, your lens, your film chamber, your slides.

LIPSTICK BLOWBRUSH, has retractable airtube \$1.60. Shpg. Cost 10c



BONUS

To 'Modern Photography' Readers:

FREE 20 TOX TELESCOPE, list price \$7.95, with your order for \$45.00 worth or more of merchandise selected from this catalog. 7 elements.

Precision ground and polished six element automatic optical system with erector lenses. Virtually a 'must' for outdoor sports, watching races, vacationing!

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated—overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.s.

Items marked FREE must be requested at time of purchase!

2" x 2" SLIDE PROJECTOR \$10.95

Beautifully streamlined design—scientific illuminating system creates brilliancy with 100 watt bulb equal to that of projectors using 200 watt bulbs. Super f:3.5 Projection lens, precision ground pictures. Raising and lowering device, on-off switch, all-metal body, dual slide carrier. U.L. approved. Reg. \$17.95.

Shipping Weight (proj. alone) 6 lbs.

Carrying Case \$3.95. Blowerbase, makes possible use of 150 or 200 watt bulb. \$7.69. Blowerbase \$3.95, 150 or 200 watt bulb. \$7.69. Shipping Weight 3 lbs., 6 lbs.

COMBINATION OFFER: 2" x 2" Projector (above), 40" x 40" beaded tripod screen, two 2" x 2" Kwik-frames, ten color slides—all for .

3-D 35MM OUTFIT \$4.95

Famous Radex Stereo Parallel (alone a \$6.50 value) PLUS popular German

Cost. 3c. all-metal stereo viewer which accom-

modates Realist or full 35mm size stereo pairs. Stereo

Parallel is mounted on tripod base shown. In

each side position of parallel, are taken viewed in a

stereo viewer, these shots provide the most perfect three-

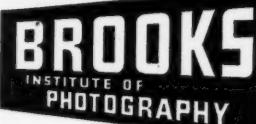
dimensional effect equaling that obtainable with the

best stereo cameras. Works with any 35mm camera.

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated—overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.s.

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BEHIND THE SCENES

(Continued from page 23)

president of the corporation, declared that first production cameras will be field tested in the New York City area starting in August. If all goes well, the camera should be on sale in the area from Washington, D.C. to Boston by Christmas. By the beginning of next spring, Mr. Cowen hopes to introduce the camera in the southern states through to the West Coast. Last area will be the northern states. At all costs Lionel wants to avoid the prospect of having cameras sold in any districts not able to supply film and servicing.

In any event, the Lionel camera represents a major effort by a manufacturer to bring stereo in color down to a price level under \$50. It remains to be seen whether plans will proceed as indicated.

And the Winpro Stereo

The stereo camera race isn't just limited to Lionel (*above*) or Coronet (*page 102*). The Zenith Film Corp. is gearing for production of the Winpro "3D" Stereo Camera which will produce standard stereo frames of 23 x 24mm and sell for \$39.95. Briefly, the Tenite-bodied Winpro has 40mm fixed focus f/6.3 lenses, a single speed of 1/50 sec., eye-level viewfinder with bubble level and built-in flash. It loads with standard 35mm color film. Exposures are varied by changing the diaphragm opening. The Winpro is scheduled for marketing in October.

Leicas, lenses and Peerless

Photo fans and photo dealers rubbed their eyes and looked twice recently when giant Peerless Camera Stores, New York, advertised a sale on brand new Leicas. First, the prices were phenomenally low. Second, instead of the usual Leitz lenses, the cameras bore 50mm, f/2 lenses with the legend, "Cooke Amotal Anastigmat." How come?

Because Peerless executives are not talking, the following story cannot be authenticated, but enough has leaked out to indicate a highly original and successful operation. This is the background.

The lenses were originally made by the famous British firm of Taylor, Taylor & Hobson, Ltd. Reputedly, they were intended for the expensive Bell & Howell 35mm Foton camera. There were all those nice lenses, idle. Obviously, they could be had for a song, if someone knew what to do with them. Here's what the Peerless people did.

Lightweight adapter mounts suitable for the Leica were made in Italy by a well known camera manufacturer and shipped here. The complete lenses were fitted to the adapters and to the Leicas. One result—a truly international camera. Another result—much gnashing of teeth by other photo dealers.—THE END

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35mm CAMERAS!**

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ARGUS C-3

"World's Most Popular 35mm Camera"

Argus C-3—has everything any photographer would want: a Cintar f3.5 coated lens—finest of its kind ground in America; a precision, gear-controlled shutter with a complete range of speeds up to 1/300 second; a lens-coupled rangefinder; built-in flash synchronizer (you simply plug in the flash gun—no dangling wires, nothing to adjust); a wonderful camera for black-and-white, action, flash and gorgeous color.

COMPLETE OUTFIT

**including Argus C-3 Camera,
carrying case, and flash gun**

\$69.50

Complete
as shown

Argus C-3 with carrying case, flash and Telephoto Lens

\$129.45

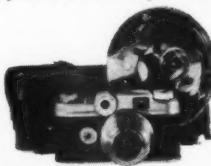
Sandmar Telephoto Lens for Argus C-3

59.95

Sandmar Wide Angle Lens for Argus C-3

59.95

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ARGUS C-4

**"America's Finest, Most
Distinguished 35mm Camera"**

The Argus C-4 has a wealth of fine precision features: A truly great lens—the color-corrected anastigmat Cintar f2.8; lens coupled rangefinder combined with a picture window viewfinder; super-accurate shutter... 1/10 to 1/300 second—perfect complement to the critically sharp lens; built-in flash synchronizer that permits use of all types of bulbs at all shutter speeds; film wind coupled to shutter to prevent double exposures.

COMPLETE OUTFIT

**including Argus C-4 camera,
carrying case, and flash gun**

\$107.00

complete
as shown

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- Synchro Shutter
- Kalar Cpld. Range Finder
- Complete Flash Gun
- Graphic Film Pack Adapter
- 6 Cut Film Holders
- Sunshade • Adapter Ring
- 4 Series VI Filters
- Deluxe Carrying Case
- 1 Package 25 shts. Cut Film
- Factory Guarantee

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FOR PICTURE
TAKING

USE OUR TIME PAYMENT PLAN AND BUY Complete CROWN and SPEED GRAPHIC Outfits

Latest Models • Brand New • Listed are all items in each Graphic outfit

Size of camera and choice of lens determines price of complete outfit.
(That is, you get the complete Graphic outfit as listed to the left, and the price you pay is shown following the camera and lens you choose.)

SIZE	LENS	COMPLETE OUTFIT PRICES	
		SPEED GRAPHIC	CROWN GRAPHIC
2 1/4 x 3 1/4	f4.5 Ektar 4"*	\$329.00	\$289.00
	f3.5 Schneider Xenar	339.00	299.00
	f3.5 Zeiss Tessar	349.00	309.00
	f3.7 Ektar	349.00	309.00
3 1/4 x 4 1/4	f4.7 Schneider Xenar 5"	313.00	268.00
	f4.7 Ektar 5"	323.00	278.00
	f4.7 Optar 5 1/4"	333.00	288.00
	f4.5 Zeiss Tessar 5 1/4"	339.00	294.00
4 x 5	f4.7 Schneider Xenar 5"	318.00	273.00
	f4.7 Ektar 5"	328.00	283.00
	f4.7 Optar 5 1/4"	338.00	293.00
	f4.5 Zeiss Tessar 5 1/4"	344.00	299.00
	f4.5 Zeiss Tessar 6"	349.00	304.00
	f4.5 Ektar 6"	349.00	304.00
	f3.8 Schneider Xenar 5 1/4"	359.00	314.00
	f3.8 Zeiss Tessar 6"	409.00	364.00

Outfits furnished with Ektalite Screens at no charge. *With 1/800 sec. flash supermatic shutter at \$13.00 additional. All Zeiss lenses "T" coated. All Graphics with GRAFLOK backs.

3 1/4 x 4 1/4 SUPER D GRAFLEX with 6" or 7 1/2" Kodak Ektar.....\$269.50
4 x 5 SUPER D GRAFLEX with 7 1/2" Kodak Ektar.....\$279.50

NEW GRAPHIC CAMERAS—Boxes Only (Customer's lens installed at no extra charge)

2 1/4 x 3 1/4 Century	\$ 85.00
2 1/4 x 3 1/4 Crown	133.80
2 1/4 x 3 1/4 Speed	173.45

3 1/4 x 4 1/4 Crown	\$132.40
3 1/4 x 4 1/4 Speed	174.45
4 x 5 Crown	136.40

4 x 5 Speed	\$180.45
4 x 5 Graphic View, Model II, all metal with case and tripod head	148.50

GI ORDERS GET THE GREEN LIGHT AT WESTEN'S

NEWEST MODELS!



Compare These Pathé Features With Any

16mm Motion Picture Camera At Any Price!

FULL FRAME FOCUSING DEVICE—You actually sight directly through the lens all the while you're filming.

VARIABLE SHUTTER—A totally closing variable shutter enabling you to make wipes, fades, and lap dissolves.

SPEEDS TO 80 FRAMES PER SECOND—A full scale of 6 speeds incorporating exclusive Pathé feature for extreme slow motion.

TRI-LENS TURRET—An exclusively designed 3 lens "C" mount turret. Smoothest operation.

AUTOMATIC FOOTAGE AND FRAME COUNTERS—Integral parts of the camera—add and subtract with extreme accuracy.

PLUS OPTICAL VIEWFINDER • BUILT-IN HAND CRANK • LONG RUN SPRING MOTOR • SINGLE FRAME DEVICE.

Pathé "16" Camera (less lens).....\$450.00
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With 500 watts of highly efficient lighting, and a powerful quiet blower for extreme coolness, this is the world's most advanced home-type projector. Has 5" coated f/3.5 anastigmat lens, and includes SELEKTRON—Semimatic changer. Strikingly superior performance and value at.....\$84.50

OTHER T D C MODELS FOR 2 x 2 SLIDES

Show Pak—300 W with blower and case.....\$ 54.50

Mainliner—300 W with blower and semimatic changer.....62.50

with deluxe manual changer.....58.50

Deluxe Model D—300 W with blower and semi-matic changer.....69.50

Professional 750 watt with blower.....150.00

T D C "DUO" MODELS FOR 2 x 2 and 2 1/4 x 2 1/2

Streamliner 300 DUO—300 watt with blower.....69.50

Streamliner 500 DUO—500 watt with blower.....89.50

FOR THREE DIMENSION PROJECTION
T D C Stereo Projector—500 watt.....\$175.00

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NIZO HELIOMATIC 8mm MOVIE CAMERA

Built-in Automatic Photo-Electric Governor, coupled to both standard and telephoto lenses—assures correct exposure. Lenses are mounted on a slide permitting instantaneous changes from standard to telephoto. When lenses are changed viewfinder changes automatically for lens in use. Precision motor for any speed between 8 and 64 frames. Parallax corrector.

ed viewfinder. Film rewind mechanism permits fade-ins and dissolves. Motor stops automatically at end of 25 feet. Single frame exposure. Self filming device. Uses standard 8mm daylight loading spool.

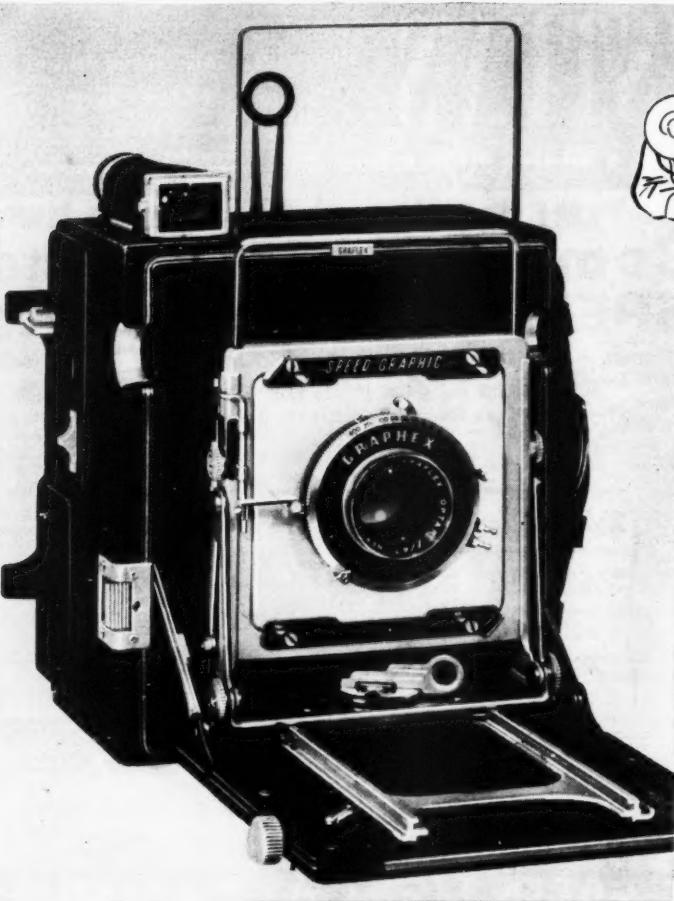
NIZO HELIOMATIC with 1/2"
f1.9 and 1 1/2" f2.8 lenses...\$295.00

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Robert Compton, Jack Frank,
Harry McGonigal, Keith Jones,
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YOUR IS

**Look At All the Attachments
That Fit Your Graphic's
GRAFLOK BACK!***



FOR ECONOMY

—the 120 Roll Holder quickly attaches to the Graflok Back and converts any size Graphic to low cost roll film—black and white or color. Compact, light-weight with automatic film control and counter. Dark slide permits removal from camera. Two sizes: $2\frac{1}{4} \times 2\frac{1}{4}$ or $2\frac{1}{4} \times 3\frac{1}{4}$. \$18.95 up.

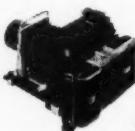
FOR PERFECT OVER-ALL PICTURE SHARPNESS

—the Riteway sheet film holder is far stronger than wood, less vulnerable than metal and *cannot* warp. Thin, light-weight easy to use, it is a wonderful value at \$4.15. For 4×5 Graphic.



FOR RAPID-FIRE SHOOTING

—the Grafmatic takes lightning fast sequence shots. Only little thicker than ordinary film holders, it holds six sheets of monochrome or color film or both! Available in $2\frac{1}{4} \times 3\frac{1}{4}$ or 4×5 sizes. (\$14.85 up). And see the famous daylight-loading Film Pack Adapters, too! (from \$7.25).



FOR PICTURES IN A MINUTE

—the Graphic Polaroid Back utilizes all of the Graphic's superb features to deliver a print in a minute. Attaching to a 4×5 Graflok Back in seconds, it is excellent for checking composition or lighting. A dark slide permits removal from camera at any time. \$77.50.

FOR PRECISION ENLARGING



—the Graflarger with Aristo Cold Grid Light rapidly transforms your Graphic into a home or portable enlarger. Doubles as light source for retouching or transparency viewer. Underwriters Laboratories Approved. Now only \$35.00.

***GRAFLOK BACK** is now standard equipment on all Graphics. Can also be bought separately and fitted to earlier models. (only \$13.95 up).

(Prices subject to change.)

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*Prize-Winning
Cameras*

Pacemaker Speed Graphic—The first choice of press and professional photographers the world over. Precision-built, high-speed press and all purpose camera has focal plane shutter with accurate, governed speeds up to 1/1000th; ground glass focus; built-in flash synchronization; selector switch for front or rear shutter; coupled range finder (optional at extra cost); rising, shifting, tilting front; drop bed; and the famous Graflex Back. Sizes 2 1/4 x 3 1/4, 3 1/4 x 4 1/4, and 4 x 5. Priced from \$228.00

Pacemaker Crown Graphic—Exactly the same as the Speed Graphic, but without focal plane shutter. At prices as low as \$185.95

Century Graphic—The most economical of the famous Graphics—but with many of their prize-winning features, including synchro-shutter; ground glass focus; coated, color corrected lens. Size 2 1/4 x 3 1/4. Now only \$108.

Many dealers offer time payments on
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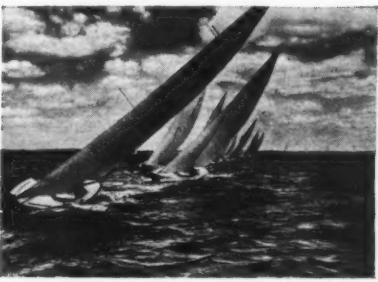
PERSPECTIVE CONTROL—Rising, tilting, shifting, front of your Graphic helps minimize distortion.



FLASH—lets you shoot anywhere, any time. All Graphics have built-in flash synchronization.



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New FR Enlarger Introduced

Amateur photographers who are looking for a simple to operate, yet sturdy enlarger, will be interested in the new FR. It accepts negatives up to



$2\frac{1}{4} \times 3\frac{1}{4}$, and enlarges approximately 6 times on the baseboard. Greater blow ups are possible by turning the enlarger around on its swivel base.

Focusing is extremely simple: The extra large focusing mount is moved up or down until the image is sharp. The unit's f/11 lens has no diaphragm stops. Other features include: hard-wood baseboard which folds up against the post for easy storing, cord switch, and standard 50-watt projection lamp. The enlarger head is made of heat-resistant plastic. Overall height is about 28 in. Price, \$24.95. For additional information write:

THE FR CORP.
951 BROOK AVE., NEW YORK 56, N. Y.

Actino-C Exposure Meter

The new Actino-C photoelectric exposure meter attaches to camera accessory shoes. Made in Western Germany,



it has ASA film indexes from 6 to 400, lens stops from f/1.4 to f/22, and shutter speed settings from 4 to 1/1000 sec. Operation is simple: A dial is turned until the desired film speed appears in the window; while aiming the meter, a (Continued on page 32)



Many projectors LOOK somewhat alike, in appearance and price — but Viewlex has something extra! **VIEWLEX QUALITY CONTROL** is a precious property — it is the real reason why Viewlex guarantees every Viewlex projector for a lifetime! — So use the best — for best protection and projection of your valuable slides. Viewlex projectors enable every proud owner to capture and hold the joy filled days of childhood, and crisp memories of yesterday with true, clear, brilliant projection — the "Once in a lifetime moments" brought to life forever on your color slides with a Viewlex projector.

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- 13.5 Coated Meritar lens.
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- New Metal Body.
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- Supplied complete with Flash Gun.
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- Focuses from 4' to Inf.
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SAVINGS TO 75% COMPARE!! ALL BRAND NEW—SPECIAL PURCHASES

Bolex Cine Fader, for 64 different effects for 8 and 16mm Cameras, Reg. 22.50	\$14.95
Spot O Matic Enlarging Timer, Reg. 12.50	8.95
Plastic Gadget Bag Zipper Type with Strap and extra outside Clip Type Pocket, Reg. 6.50	1.95
#884 Eveready All Metal 8mm 200' Reel Case holds 3 reels, Reg. 3.50	1.95
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Lock "n" Matric Tripod, opens easily and instantly. Locks firmly in any position at any height. Extends from 18" to 45". Reg. 3.95	1.95
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Kodak Precision Print Scale, Reg. 1.00	.95
Portable 6" All Metal Trimmers... Reg. 2.95	.98
UNITED Elec. Darkroom Foot Switch	2.98

UNITED REPEAT SALE Imported ELITAR MOVIE LENSES For 8mm and 16mm MOVIE CAMERAS **SAVINGS TO 33 1/3 %**

Each Elitar 8mm and 16mm lens is coated. All units are in a Chrome polished barrel. All are brand new.

FOR 8mm CAMERAS AVAILABLE IN STANDARD D MOUNTS FOR MOST POPULAR BRANDS

For Bolex L-8, Bell & Howell Tri-Lens, special adapters are necessary priced at \$2.00 each. These units started are suitable for Bell & Howell 172A and 172B Models as well as 134V and 134W Models.

TELEPHOTO

1" f3.5 Fixed Focus D Mount.....	\$ 7.57
1 1/2" f3.2 Fixed Focus D Mount.....	9.85
*1 1/2" f3.2 3" 6" to Inf. D Mount.....	13.45
*1 1/2" f2.5 3" 6" to Inf. D-Click Stops.....	20.50
*1 1/2" f1.9 3" 6" to Inf. D-Click Stops.....	29.55
1 1/2" f1.5 3" 6" to Inf. D-Click Stops.....	32.35
1 1/2" f2.3 3" 6" to Inf. D Mount.....	17.95

WIDE ANGLE

*7mm f2.5 Fixed Focus D-Click Stops.....	19.00
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NEW PRODUCTS

(Continued from page 30)

knlurled ring is turned until the needle points to zero; proper lens opening and shutter speed combinations are then read off. A special baffle limits the photoelectric cell's angle of view. The meter has a satin chrome finished metal body, and weighs 2½ oz. Price including leather case, \$24.95. For additional information write:

ALFA PHOTO CORP.
303 W. 42 ST., NEW YORK 36, N. Y.

Sterling Stereo Viewer

Both 23 x 24 and 24 x 30mm stereo slides can be accommodated by the new Sterling stereo viewer. Other features of this battery-operated view-

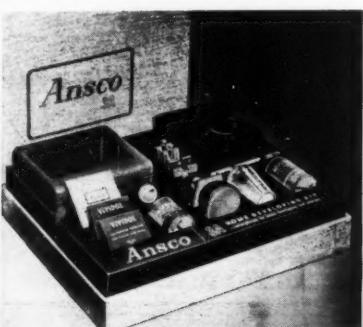


er include: Interocular adjustment, individual eye focusing, and thumb-control switch. For viewing by several people without changing focus, the unit can be adjusted for universal focus. Price less batteries, regular model, \$9.95; special ivory model, \$12.95. For more information write:

STERLING COMPANY
148 E. SUPERIOR ST., CHICAGO 11, ILL.

Ansco Developing Kit

Everything needed for film developing and contact printing is included in the new Ansco 3A Home Developing Outfit. The kit features a contact printer with exposing on-off switch, red safelight, and hinged platen, as well as



the new Ansco developing tank. Also included are three trays, glass graduate, thermometer-stirring rod, four film clips with two lead weights, printing paper, film and paper developers,

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YOU CAN count on owning an exciting album of favorite snapshots in true-to-life colors which capture the soft blue of the sky, the highlights of lovely hair and glowing skin tones, colorful fabric patterns—in fact, every color created by nature or made by man to add beauty to the things with which he lives. When you discover Marshall's Photo-Oil Colors, the thrill of full color will be yours at a mere fraction of the cost of any other color process.

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the only
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backed by
over 30 years
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a tool...
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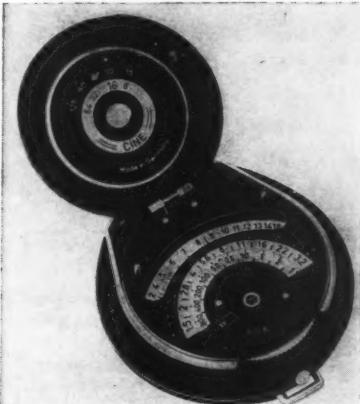
John G. Marshall Mfg. Co., Inc., Dept. 110, 157 North 3rd St., Brooklyn 11, N. Y.
Canadian Div.: Emano Photo Products, Ltd., 132 Wellington St. West, Toronto 1
Export Div.: Emano International Corp., 103 West 47th St., New York 36, N. Y.

acid fixer, two-way safelight, and Ansco's booklet, *Developing and Printing Made Easy*. Price of kit, \$14.95. For more information write:

ANSCO
40 CHARLES ST., BINGHAMTON, N. Y.

Bertram Chrolon Exposure Meter

Compact size and easy to read dial numbers are features of the Bertram Chrolon photo-electric cell exposure meter. It is designed for use with still or movie cameras. It has ASA index numbers for all popular still and movie

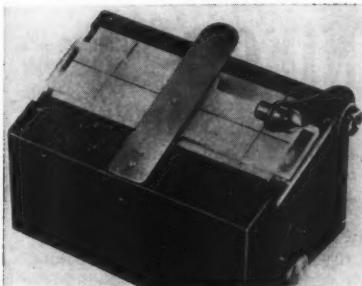


film, with exposure times ranging from 1/1600 sec. to 4 min., and diaphragm stops from f/1.5 to f/32. Made in Western Germany, it has a watch shaped metal case, shock-proof construction, and a jewel mounted measuring system. It weighs slightly more than 2 oz. Price, \$19.95. For further information write:

WILLOUGHBY'S
110 W. 32 ST., NEW YORK 1, N. Y.

Iloca Stereo Mounting Jig

Stereo transparencies can be mounted in glass, metal, plastic, or cardboard, with the Iloca stereo mounting jig. The stereo pairs are held in place by means



of a spring-lever controlled glass top plate. Built-in cross hairs provide accurate alignment of the pairs. For use with metal mounts, the plate is easily removed, and the spring-lever alone holds the mounts in place. Other features include: built-in cutting knife, and adjustable mirror for reflecting light through the mounting stage.

(Continued on page 34)

TDC Streamliner "500." Blower-cooled, 500-watts, 5" f/3.5 anastigmat lens. With Selectron-Semimatic 2" x 2" changer... \$84.50*



TDC Stere-Vivid three-dimension projector. Twin 5" f/3.5 anastigmat lenses. Two 500-watt lamps. For 35mm stereo slides and two-dimensional 2" x 2" slides \$175*



GOOD NEWS from Sid and Imogene*

TDC Selectron Makes Slide "SHOW OF SHOWS" Better than Ever!

Sid's excited—Imogene's thrilled—because they've learned how much easier and speedier you can show color slides with the TDC Selectron Changer. Just a flick of the finger, and the next slide is TDC projected—no lost slides, no fumbling, no confusion! Everyone agrees, there's lots more fun and lots less work showing slides with the TDC Slide System.



He: You never have to touch a slide by hand...TDC Selectrays are permanent, handy slide files always ready to slip into the TDC Selectron for a quick show or a full evening of easy fun!

*Sid Caesar and Imogene Coca, starring in NBC-TV's "Show of Shows" Sat., 9 P.M., E.S.T.



She: TDC Selectron lets you enjoy your slides, too, because you can sit back and forget everything but that flick of the finger which projects the next slide on the screen!



He: And just think—TDC Slide Projectors are the ONLY ones which offer a Selectron changer as original, factory-matched equipment with most models!

TDC Slide System... Best for You!

Your slides deserve the TDC treatment. Find out for yourself how wonderfully handy it is to have your slides completely protected, yet instantly ready for your enjoyment. See how much more you'll get from your pictures when the TDC Slide System takes over the "labor" of your own Show of Shows!

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how to make better slides, give better slide shows.
Written by Rus Arnold, A.P.S.A.



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3512 N. Kostner, Chicago 41, Ill.

Please rush my FREE copy of your new slide photography and projection booklet.

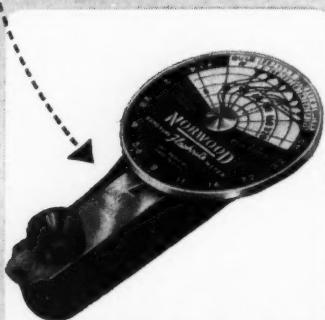
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ABOUT 200,000,000 FLASH PICTURES!

It is predicted that about 200,000,000 flash pictures will be taken in 1953. This means millions of rolls of film, flash bulbs, batteries, etc... If your camera is equipped for either regular flash or electronic flash, you can assure yourself of top pictures and utmost economy if you own these NORWOOD Flash Accessories.



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Automatic Exposure Meter
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Cuts down waste of film and bulbs by helping you get swell flash shots on the button. Entirely automatic—no guide numbers—no calculating—you merely set the Flashrite for the film and bulb in use, turn the computer until the subject is in full focus and read the proper camera settings—that's all! Only \$12.95.

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These Items Will Make an Excellent Christmas Gift for Your Friends — and Yourself! Write for Literature to Director Products Corp., 570 Fifth Avenue, New York 36, N.Y.

NEW PRODUCTS

(Continued from page 33)

Made in Western Germany, it is all metal in construction. Price, \$12.50. For additional information write: ERCONA CAMERA CORP. 527 FIFTH AVE., NEW YORK 17, N.Y.

Federal 240 Enlarger Introduced

Compactness and rugged construction are features of the new Federal Model 240 Store-Away enlarger. It is an economy-priced version of the Model 269. Designed to take negatives up to $2\frac{1}{4} \times 3\frac{1}{4}$, it can be taken apart or set up quickly, and stores in a very small space. The unit is of the diffusion



type, and uses a 75-watt clear lamp. It comes with a 90mm, f/7.9 Bifax lens incorporating a lens-opening dial with 5 click stops and a built-in red filter.

The Model 240 has helical screw focusing, and provides $1\frac{1}{2}$ to 7 times magnification at the baseboard. Greater magnifications are obtained by swinging the head around. The negative carrier is of the metal book type with glass pressure plates. Available as accessories are interchangeable dustless metal plates in sizes up to $2\frac{1}{4} \times 3\frac{1}{4}$. Construction is of steel, with two-tone wrinkle finish. Price, including lens, glass pressure plates, 4 paper masks, focusing target, lamp, and instruction manual, \$24.95. For additional information write:

FEDERAL MFG. & ENGINEERING CORP.
199-217 STEUBEN ST., BKLYN 5, N.Y.

Hollywood 8-16 Splicer

Both 8 and 16mm movie film can be spliced with the new Hollywood Automat splicer. It features an emulsion scraper which, the manufacturers state, does not tear the film. The left top film holding plate releases to an open position when the two right plates are locked, permitting removal of sur-

(Continued on page 36)

Use it Manually
or Automatically

Airequipt DUAL-VIEWER

for 2 x 2
slides



Here's the latest precision Airequipt product... a brilliant illuminated viewer for 2 x 2 slides... that can be used manually, or AUTOMATICALLY with the famous Airequipt Automatic Slide Changer. It's a handsome, streamlined, moulded Bakelite unit, with a large optically ground and polished lens, edge-to-edge diffused illumination, two-position tilt for individual comfort in viewing. \$14.95
DUAL-VIEWER only (Changer extra) \$14.95

AUTOMATIC SLIDE CHANGER
Automatically changes slides in rapid sequence, for your Airequipt DUAL-VIEWER, or most 2x2 projectors. \$14.95

Write for complete catalog of products by:

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NIKOR stainless steel DEVELOPING TANKS

No other tank so popular. Lasts a life-time, never corrodes or stains, is always immaculately clean, simple and easy to load, rapid daylight filling, requires minimum solution. A must for color. Reversible color film can be flashed in reel. Available in following and other sizes:

No. 35 for 35mm (40 exposure) . . .	list \$6.67
No. 1 for VP roll, or No. 2 for $2\frac{1}{4}'' \times 2\frac{1}{4}''$ roll film	7.62
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A fine German import. All-metal body, leather covered, chrome finished. Uses 2 1/4 x 2 1/4 or 1 1/2 x 2 1/4 film. Flash-synchronized, Coated Meritar f/3.5 lens. \$29.50
Regular \$59.50
With "T" coated f/3.5 Carl Zeiss Tessar Compur Rapid Shutter, regular \$99.50...
Westlake's special..... \$54.50



NEW

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A real beauty — fully synchronized, interchangeable lenses. Speeds up to 1/1000. Removable hood, self timer, etc. f/3.5 Tessar lens. Think of this — Regular price \$285. Westlake's special at \$169.95*

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4 x 5 LINHOF STANDARDPRESS



Built-in rangefinder, Hellar f/4.5 lens in Linhof Press Compur Shutter.

Reg. Price \$324.58
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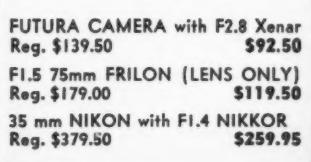
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BUSCH PRESSMAN



4 x 5 with Kalart rangefinder. Wollensak f/4.7 135mm coated Reptar lens in Rapax shutter. Reg. \$230
Complete \$119.95
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2 1/4 x 3 1/4 Busch Pressman with f/4.5 Synchro. Complete with rangefinder, double extension bellows. Reg. \$198.50
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Complete with battery power pack. Reg. \$149.50.... \$79.95*

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Touch focusing—synchro for flash—all metal body—body release—satin chrome finish—f/2.9 lens, speeds up to 1/200 secund. Reg. \$44.00
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w/Prenter S Shutter, 1 sec.-1/300 sec. MX shutter, self timer.
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Eliminate guesswork from your shots. Save film, energy, money with this low cost, precision exposure meter. Made by experts in Germany; takes readings from 1 minute to 1/1000 sec. Case included at Reg. price \$17.85
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New Testrite Enlarger Introduced

The Testrite Merit Fotolarger is an economy priced, simple to operate unit, especially designed for beginners.

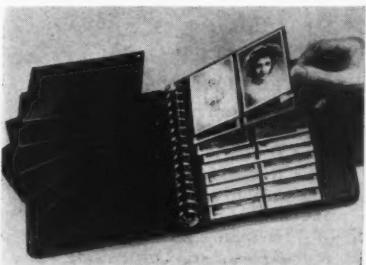


It accepts negatives from 35mm to $2\frac{1}{4} \times 3\frac{1}{4}$. Features are: cool metal lamphouse, two piece glassless rotating negative carrier, friction focusing, interchangeable lensboard, red filter, rigid post, and large baseboard. Price, less lens, \$19.95; accessory enlarging lens with Waterhouse stops of f/6.9 and f/11, \$3.95. For more information and a free catalogue write:

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Holson R5 x 7 photo albums, as well as similar multi-ring binders, can be converted to the use of overlapping



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The pages consist of acetate envelopes
(Continued on page 38)

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(Continued from page 37)

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paper, two packs each of developer and fixer, thermometer, print tong, 8 oz. graduate, and package of photo blotters. Price, \$7.95. For more information and a free catalogue write: TESTRITE INSTRUMENT CO.

57 E. 11 ST., NEW YORK 3, N.Y.

Westinghouse Peanut Flash Bulb

A new peanut flash bulb, the Westinghouse Synchro Press #8, has been designed to prevent overexposure at close distances. The manufacturer states that it can be used with simple non-adjustable flash cameras, as well as cameras which synchronize with #5, or similar medium peak bulbs.

The #8 has a light output of approximately 7,000 lumen sec. (midway between the SM and #5 bulbs), and reaches peak illumination in 20 milliseconds. It fits bayonet sockets, and is 2% in. long. Price, 12 for \$1.50. For additional information, write:

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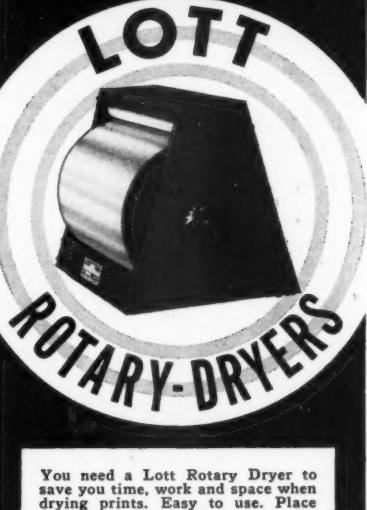
Perrin Increases Pro Bag Line

Four new bags have been added to the Perrin Pro line. Each holds a different camera and accessories. The #207 bag is for the Pathfinder model of the Polaroid camera; the #208, for the Exakta; the #211, for stereo cameras (it also holds various 35mm cameras); and the #212, for Rollei and other twin lens reflex cameras with flashgun attached.

The bags are made of saddle leather and are partitioned inside for camera and accessories. They have adjustable rings at the bottom for attaching the Perrin Tripod Attachment straps, as

(Continued on page 42)

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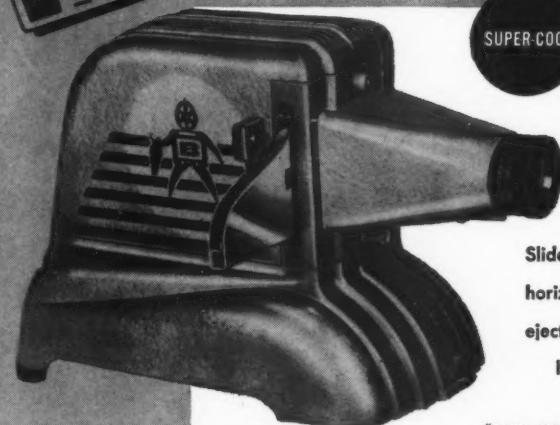
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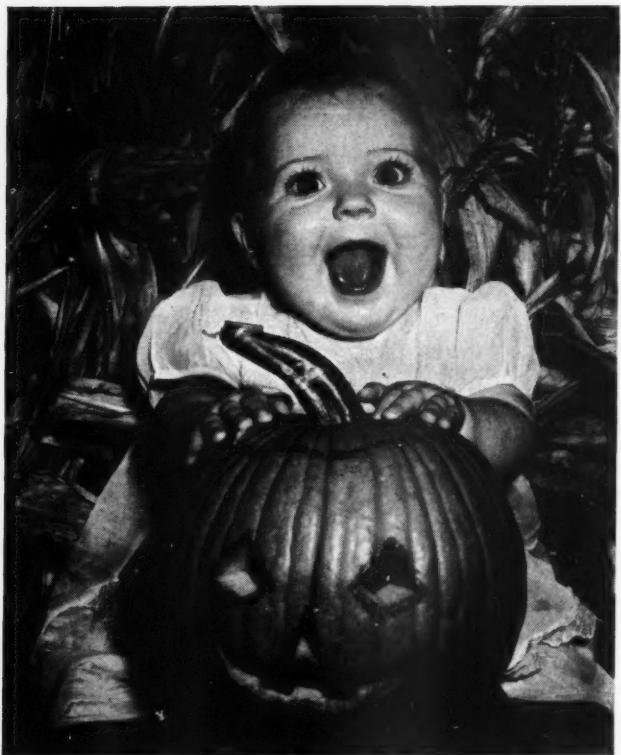
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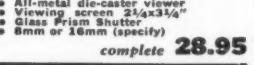


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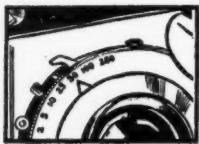
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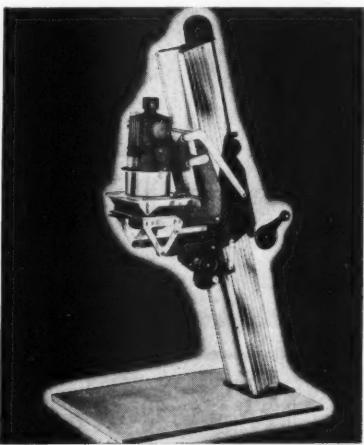
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(Continued from page 38)

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The new Simmon Automega B-5 enlarger is a lower priced version of the well known Automega B-3. It provides automatic focusing for negatives from 35mm to 2 1/4 x 3 1/4. The double condenser illumination system can be adapted to the use of lenses



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(Continued on page 108)

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simple props

CONSIDER A ROSE without a drop of dew. A model, as a rose, may be a self-contained beauty. But add a simple prop that accents her features or helps build a mood, and an immediate visual impact will be made even to the casual picture observer.

The work on these pages, by first-rate photographers who are practiced in the art of direct expression, shows the many different purposes for which props may be used. Hal Reiff has employed a perfectly ordinary object as an unusual prop for his study. As a point of rest for her angular position, the table helps the model emphasize her role as a dancer. Andre de Dienes, on the other hand, put his model in soap bubbles to make a straight cheesecake shot.

How different are Howell Conant's or Harry Clarke's use of props! Conant's newspaper and Clarke's rose were set-ups for pictures with qualities of buoyant lightness and "style." The extraordinary, a piece of driftwood artfully placed by Peter Basch, achieves singular sophistication. When Herman Leonard posed his model in a row of straight-backed wooden chairs and made a low angle shot, the result was a fragile study of a woman in an attitude of quiet serenity.

The various techniques of using props will be seen after careful analysis of each picture. A prop may contrast with the model in form, tone, and sometimes texture. At other times a prop repeats or restates some dominant feature which she may have, or a particular feeling that the photographer wants to bring out.

Of course, the total picture is largely dependent upon the model's talents. But critical organization of pose and simple prop ideas is ultimately what makes a photograph "come off" with finesse.

◁ HAL REIFF places a soft, relaxed form (Jill Melford's) against severely angular table. This prop functions as an immediate contrast and thus *makes* the picture. Says Reiff, "She was blessed with magnificent legs, so I found myself lowering the camera to feature their unusual proportions." Taken with a Rollei on Super-XX. Reiff used one bank of lights totaling 500 watts. Exposure: 1/5 second at f/8.



ANDRE DE DIENES. Marilyn, again, before, during and after—bath, of course. A hairbrush, bubble bath and turkish towels are wonderfully innocent props for a high-powered model. In the shot, *left*, straight lines of background set off those of Monroe's (which are diametrically opposite), while hairbrush, though inconspicuous, completes the overall picture composition. Made in natural light, late afternoon, 1/100th second at f/8. In the drink, *below*, Marilyn's suds are a simple prop solution to achieve the desired effect by tonal contrast. Bounce light, 1/50th second at f/5.6. There is contrast in textures as well as tonalities, *opposite page*. The extremes of slick hard tiles and loose rough toweling are a very successful prop device that sets off a soft form. Bounce light, 1/50th second at f/5.6. All three photographs were made on Super-XX by a Rolleiflex with f/3.5 Zeiss Tessar lens.







△ **HOWELL CONANT.** Although newspaper takes up a greater area than Romaine Simenson's head, it's a subtle contrast to her semi-shadowed impish face. Note repetition of ovals: the "O" in upside-down "20," eye, earring, mouth and face itself. These integrate model and prop, while diagonal of paper "cuts" your eye to the girl. Electronic flash was bounced from ceiling to simulate skylight. Hasselblad camera, Plus-X, f/22 at 1/150 sec.

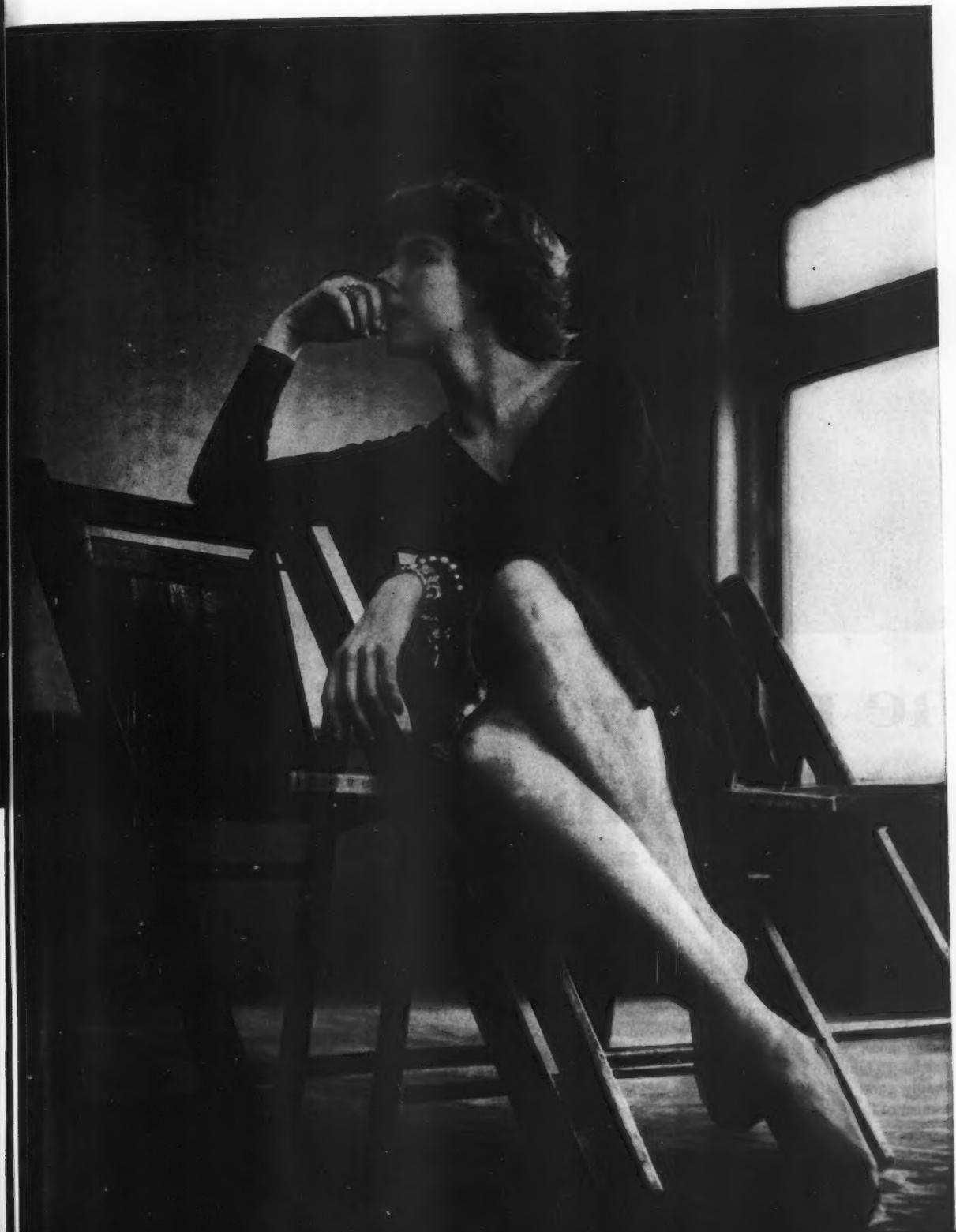
HARRY CLARKE. A rose is a rose is pretty model Jackie Cezane, whose mouth and brows are repeated in pointed leaves of a false, but effective flower. By framing her features in this way, Clarke anchors the center of interest. He used a 5 x 7 view camera with 12 in. Kodak Ektar lens and Super-XX. Illumination came from two electronic flash tubes, was bounced off reflecting surfaces. The lens was stopped way down to f/45 (forty-five) to keep everything sharply in focus.

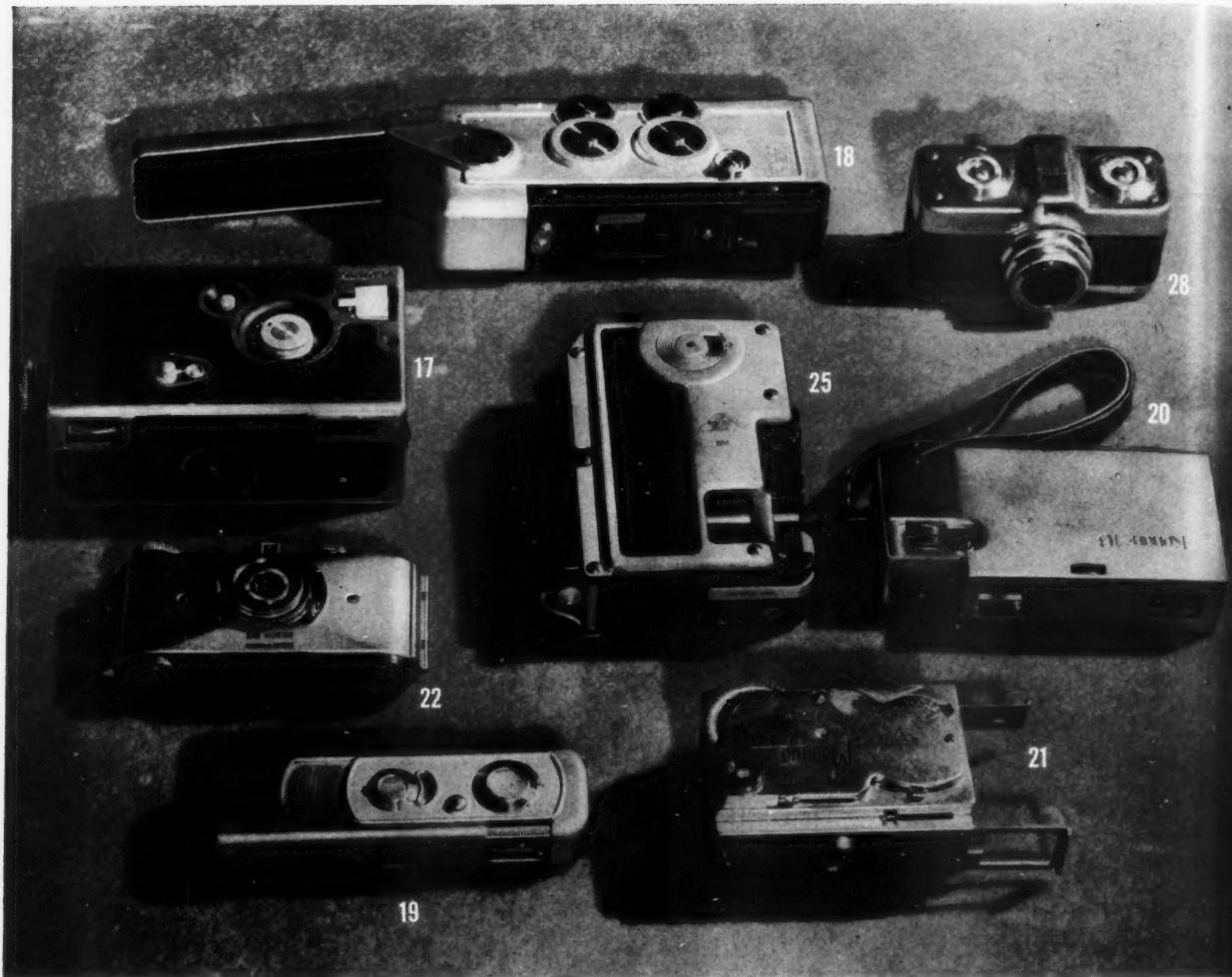




△ **PETER BASCH.** Dark tonal background of shadow and driftwood abruptly defines the head of Dorothy Rice, making her face the predominantly striking element in the picture. The light, which came from a single barndoored 500-watt spotlight, was purposely kept off the driftwood in order to hold the background to a consistently low key and to permit the model's face to stand out. Basch used a Rolleiflex and Super-XX. Exposure was 1/10 sec. at f/11.

HERMAN LEONARD. A chic pair of legs is flanked by ▷ stark repetitive—but not competitive—pattern of slanting chair legs that make an interesting setting for pensive Betsy Von Furstenburg. Although prop seems to consist of several elements, it is essentially simple, for the restatement of lines in the chairs kills them as conflicting subject matter. Made by natural light with a Rollei, 1/50 at f/3.5.





the new world of sub-miniatures

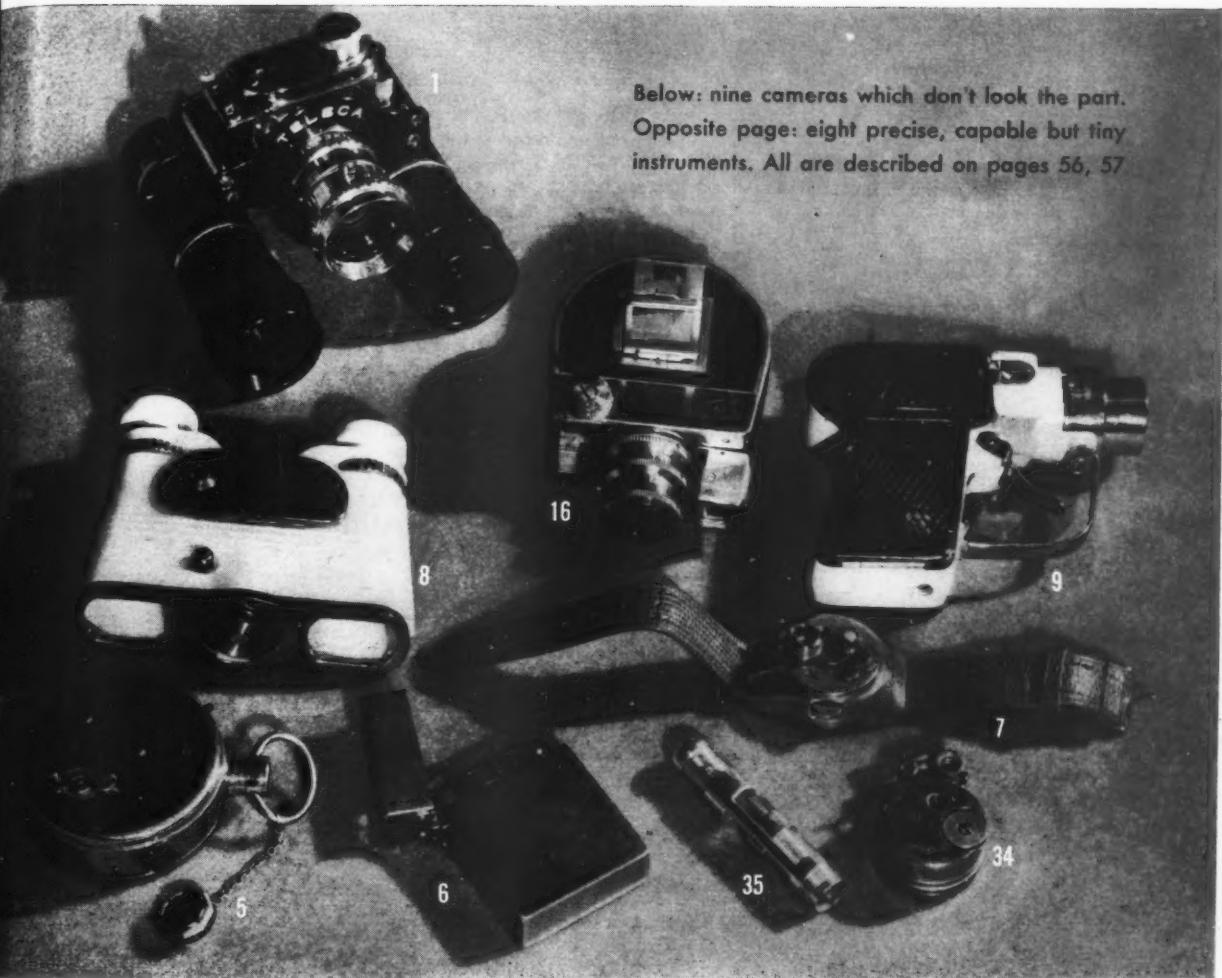
by LEWIS C. GUST

IF YOU ARE LOOKING for a new photographic challenge, if you want to be a pioneer (without too much hardship), if you're the kind of person who wants a camera at hand or in pocket day and night to record events and people, take a look into the new world of sub-miniatures.

Ever since photography began, inventive minds have been devising smaller, less conspicuous, more efficient cameras. Today, there are in existence more than 30 modern cameras, all using 16mm or smaller films. Of these, at least eight are precision instruments capable of remarkably good photography, *in skilled hands*.

Yet, most of these cameras (the better ones, that is) are

in the hands of carefree and careless snapshooters. They are being used with enthusiasm. But, through lack of knowledge of what the little cameras can and can't do, and lack of skill in handling the cameras and film, most of the picture-taking results range from mediocre to just plain terrible. The aim of this article: to describe all the sub-miniature cameras which one is likely to come across; to classify these cameras as to their picture-taking abilities; to list the kinds of film which are available and show how to provide your own lengths of odd widths; to explain the techniques of processing the tiny films so as to get the best results.



Below: nine cameras which don't look the part.
Opposite page: eight precise, capable but tiny instruments. All are described on pages 56, 57

First, what's a sub-miniature camera? For our purposes: any camera using a film narrower than the regular perforated 35mm film used in standard "miniatures." Let's take a look at the evolution of the species.

The first really small cameras were probably designed to reduce the embarrassment caused by the conspicuous bulk of the early photographic equipment. Self-consciousness on the part of the subject could in some measure be lessened if the "black box" were made to resemble some other commonplace object. So, around 1880 there were cameras that had the look of small suitcases. Then, a few years later there came a rash of cameras that looked like parcel post packages, pocketbooks, picture albums, opera glasses, watches, walking sticks, hats, and even a tie pin (the Cravat camera, which appeared in 1886).

Let's jump forward to 1937, to the advent of the Minox. This was the first of the modern precision sub-miniatures, a marvel of its time, and still unsurpassed for quality of construction. The camera was produced in Latvia from 1937 to 1941. During the war the plant was moved into

Germany, where production was resumed in 1948. Minoxes first came to America in numbers in 1940, in time to be used for clandestine photography by the secret agents of both the Allies and the Axis.

Today the Minox and other sub-miniatures are used by fashion spies in commercial wars and by other kinds of spies in fiction and fact. In the movie *Walk East on Beacon*, FBI agents are shown using a Mikroma camera concealed in the spotlight of an automobile. In the "silent" picture *The Thief*, Ray Milland as the chief villain clicked his Minox industriously, copying atomic-energy documents.

Sub-miniatures, however, should not necessarily be relegated to the realm of sinister photography. These are real "candid cameras"—candid, that is, in the sense that they can be carried in a shirt pocket or handbag; that they need never be left at home because of bulk; that they are always ready for informal portraits and records of events. Even when used openly, the sub-miniature is usually less conspicuous than a "giant" 35mm camera which the photographer may be trying to



FAST LENSES: Minicord has f/2 lens. Capt. Arthur J. Rosenbaum used it at National Photo Show, New York. The white areas on photos indicate size of negatives.



FAST SHUTTERS: Minox shutter speeds go to 1/1000 sec. Daniel James stopped this diver with a Minox.

conceal. How many times have you said, "If only I had a camera with me?"

How to pick a sub-miniature

The selection of a sub-miniature should be based on the ultimate use of the end product—the print—and also conformity to the limits of the pocketbook. Some of these cameras are in the \$100 plus class. Beware of some of the very low-priced ones, however. The optical and mechanical requirements of these tiny cameras are such that real quality and precision workmanship are necessary to get any kind of results. Right after World War II there was a flood of tiny foreign- and domestic-made cameras. Many of these could be classed only as novelties and despite inflated selling prices were virtually worthless, photographically. Nevertheless, their attraction was so strong that quite a few people bought them—and many were well stung in the process.

Photographers who take up the sub-miniature must learn to think in new dimensions. A print 5 x 7 inches represents an enormous degree of enlargement from a negative measuring 10 x 10mm (less than one-half-inch square). If the camera is properly handled, and the film developed and printed according to high standards, some of the precision sub-miniatures can make such prints without too much trouble. However, most people want pocket-size prints of their family or friends which they can give away. Precision sub-miniatures can produce excellent prints up to 4 x 5 inches, without difficulty. Cheaply made tiny cameras can't give such results. In any event, if your tastes run to wall-sized murals with sharp detail throughout, you had better stick to big cameras.

What about film?

Choice of film is a problem with sub-miniatures. Today we are in the same boat as were the early practitioners with the Leica—they had to improvise from available bulk 35mm movie films. So, many sub-miniatures have been designed to take available perforated 16mm movie films. Other cameras, however, use unperforated films of various widths—some may be paper-backed, as are conventional-size roll films. In the case of the Minox, special films are brought in from Europe by the importers of the camera.

If you buy a sub-miniature which is being imported by an established company, at least you should be assured of a continuous supply of films. At best, however, you are at the mercy of the importer and his prices. If your camera uses a special paper-backed roll, you can't do much about it. However, if your film, no matter what width, loads in cassettes, you can load your own bulk film at low cost. On page 114 is a picture of a simple film slitter with which you can cut down 35mm or 16mm films to any desired width. If you don't have shop facilities to make such a device, it's still possible to slit short lengths of film in total darkness. A flat board, a straightedge and two razor blades blocked apart the correct distance will do. Or try a double straightedge and a single razor blade.

Most sub-miniature camera lenses have a focal length in the range of 12.5 to 30mm. Even when wide open they provide extreme depth of field, (*Continued on page 114*)



All these cameras are identified by number and fully described in a listing beginning on page 56.

THE CAMERAS SHOWN ON PAGES 52, 53, 55 ARE FULLY DESCRIBED

Precision Cameras

16: SOLA. Germany. This is a 16mm camera producing a negative size of 15 x 20mm. It has many unique features such as a spring motor, permitting sequence shots about 2 per second and 15 exposures per winding. Shutter speeds range from one to 1/300 sec. Camera may be held in the hand and operated as a gun. Two types of finders are standard on this camera; a sports finder and an optical reflex finder. Film is darkroom loaded into cassettes. Three lenses are available for this camera: 1 in., f/2; 1 in., f/3.5; 2 in. f/5.5. The Sola was manufactured just prior to World War II and was made in what is now the French Zone. There are a few of these cameras in the United States; they are considered scarce. Capable of serious work. The Sola is 2½ x 3½ x 1¼ in. and weighs 13.5 oz.

17: SFOMAX. France. Utilizes 16mm non-perforated film and produces a format 12 x 24mm. Film transport and shutter cocking are coupled together. The lens, a 30mm, f/3.5, is coupled to the rangefinder. Focusing is from .5 meters to infinity. Shutter speeds are bulb, 1/30, 1/60, 1/100, 1/150, 1/400 sec. A medium yellow filter is built into the camera and may be snapped in or out. The Sfomax is capable of 15X enlargements. The camera is of sturdy construction and is operationally very convenient. The Sfomax is 2¼ x 3¾ x 1½ in. and weighs 12.7 oz. This camera is highly recommended for serious work. Not available in the U.S.

18: GAMI 16. Italy. This is one of the finest of all the sub-miniatures. The six-element f/1.9, 25mm lens is capable of extremely high resolution permitting 20X "blow ups." This fine lens is coupled to a coincidence type rangefinder; both rangefinder and viewfinder are combined. The rangefinder is effective down to .5 meters and the parallax correction is automatic. This camera has built-in exposure meter of the extinction type. In addition to possessing three light ranges it is directly correlated to the diaphragm control which is marked in ASA ratings. Camera utilizes 16mm non-perforated film and produces a 12 x 17mm negative. The shutter is a focal plane type and is located just behind the objective. There is a self capping arrangement for the prevention of fogging. Shutter speeds are bulb, 1/2, 1/10, 1/25, 1/50, 1/100, 1/200, 1/500, and 1/1000 sec. The manufacturers claim an unusually high degree of shutter accuracy. The Gami 16 possesses a built-in motor permitting three rapid sequence exposures with one winding. Winding of the motor is accomplished by merely closing the extended section of the case; this serves also as a handle. When the section or handle is closed, the camera is sealed and may be carried in the pocket without further ado. Shutter speeds and rangefinder

control are all in a handy position on top of the camera. The Gami 16 is equipped with a medium yellow filter which is brought into position by means of a small lever. Film cassette is double and is easily darkroom loaded. The camera stops automatically when the last portion of film has passed the pressure plate. The exposure counter automatically resets to zero with the insertion of each new cassette. Built-in flash synchronization is provided for both flash bulbs and electronic flash. The camera is 4½ x 2 3/16 x 1 in. and weighs 10.7 oz. Camera case is aluminum, satin finish. Gami means Ga for Galileo, the manufacturer, and Mi for Milan, the location of the factory in Italy. This camera may soon be available in the U.S.

19: MINOX. Germany. Originally a product of Riga, Latvia, but now manufactured in the Western Zone. This extremely popular camera is decidedly in the pioneer class, having been before the public a few years before the outbreak of World War II. It takes 9mm film and produces an 8 x 11mm format. The Minox utilizes a unique optical system consisting of an f/3.5 anastigmat, calculated for use with a special curved field flattener and a curved pressure plate. This optical combination produces the highest resolution lens system in use today in sub-miniatures. There is no diaphragm. All exposure control must be accomplished by means of either the shutter speeds (bulb, 1/2, 1/5, 1/10, 1/20, 1/50, 1/100, 1/200, 1/500, and 1/1000 sec.) or by the use of the two built-in filters. Focusing is from .2 meters to infinity. Film is transported and the shutter cocked by means of a pumping action of the inner body of the camera. The camera has a beautiful satin finish on aluminum. Many accessories are available, such as case, snake chain, enlarger, developing tank, tripod, and negative file. The camera is 5/8 x 1 x 3 in. and weighs 2.69 oz. Available.

20: KONAN 16. Japan. It utilizes 16mm film and produces a format 11 x 16mm. The lens is an f/3.5, 25mm fixed focus. Shutter speeds are bulb, 1/25, 1/50, 1/100, and 1/200 sec. The film is darkroom loaded into a cassette of unique design, the central aperture of which is butted against the last element of the lens. This aperture is closed by a spring loaded slide, thus preventing premature exposure to light. This slide is automatically withdrawn when the camera is readied for operation. Film is transported and the shutter cocked by simply pumping the inner body of the camera in a manner similar to that of the Minox. The Konan is of heavy brass construction. The camera is 2¾ x 1¾ x 7/8 in. and weighs 10.6 oz. Available.

21: MAMIYA SUPER 16. Japan. It utilizes 16mm film and produces a format of 12 x 12mm. Many in-

HERE, IDENTIFICATION NUMBERS MATCH THOSE IN PICTURES

teresting features are packed into its small housing. There is a built-in filter which may be snapped in or out, built-in flash synchronization, an f/3.5, 25mm lens, focusing from 12 in. to infinity and a parallax correction on the sports finder for this close range. Shutter speeds are bulb, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/200 sec. The end of the lens cover slide also serves as part of the finder. Film is transported and the shutter cocked by rotating a serrated disk on the top of the camera. The camera size is 1 $\frac{1}{8}$ x 3 $\frac{1}{4}$ x 1 $\frac{1}{8}$ in. and weighs 6.3 oz. Available.

22: PARVO, Italy. The camera utilizes 16mm non-perforated film and produces a format of 15 x 15mm. The shutter is a true focal plane type operating at bulb, 1/40, 1/100, and 1/150 sec. There is a synchronized light trap which prevents exposure of the film while rewinding. The Parvo lens is a 20mm, f/3.5 in a focusing mount (from .3 meters to infinity). The lens mount may be screwed back into the camera body when not in use, presenting a very flat streamlined appearance. The camera was designed for 16mm roll film, paper backed and exposure numbered. However, since the film transport and shutter cocking are synchronized, the film spacing becomes automatic. Thus the camera may be darkroom loaded from bulk film without fear of overlapped exposures. The Parvo is of simple design, well engineered and of precision construction. The model shown is a prototype. The Parvo is 3 $\frac{3}{8}$ x 1 $\frac{1}{8}$ x 1 $\frac{1}{8}$ in. and weighs 5.9 oz. Not available.

25: MINICORD, Austria. It utilizes standard 16mm motion picture film and produces a 10 x 10mm format. The film is loaded into a special cassette. The cassette and the back end of this camera become a unit which is simply snapped into place for operation. For the photographer who "loads his own" a word of advice is in order. The film is pushed from the bottom half of the cassette into the upper half. The transportation of the film is assisted by two pins which engage sprocket holes and do the pushing. The film must take a set in the proper direction as this camera does not have a positive take-up action. Should the film curvature be unfavorable, it will then be discovered, after exposing perhaps half a roll, that the film is neatly accordion pleated and did not pass into the upper cassette. The Minicord lens is a 25mm, f/2 anastigmat of high resolution. The focusing arrangement is unique, utilizing a matched viewing lens above the taking lens. The subject is imaged on a fine ground glass in an upright position. The camera is held at eye level for viewing and focusing. This reflex optical finder provides for adjustment of the accommodation of the eye by permitting the focusing of the eyepiece on a black circle in the center of the ground glass screen. The focusing range is from .4 meters to infinity. The film is transported and the

shutter cocked simultaneously by pulling back on the trigger with the forefinger. Moving the forefinger from the trigger to the release is convenient and rapid. Shutter speeds are 1/10, 1/25, 1/100, 1/200, 1/400, and bulb. The controls of the Minicord are so readily accessible that this camera may be operated with one hand. The Minicord is 4 $\frac{1}{8}$ x 2 $\frac{3}{8}$ x 1 $\frac{1}{16}$ in. and weighs 12.2 oz. Available.

28: MIKROMA, Czechoslovakia. It uses 16mm film and 11 x 14mm format. The lens is an f/3.5 of 20mm focal length and is in a focusing mount (.5 meters to infinity), diaphragm control has click stops. The shutter speeds are bulb, 1/25, 1/50, 1/100, and 1/200. Film is loaded into cassettes; perforated film must be used. The film transport, shutter cocking and exposure release are all coupled to a sliding bar. Activation of this bar performs all operations. The shutter is tripped before the bar reaches the end of the stroke, thereby reducing the possibility of jarring the camera during exposure. The bar may be operated rapidly, thus providing a means of sequence photography. The finder is of optical construction. The Mikroma produces negatives of sufficient resolution for 12X magnification. It is very rugged in construction. This camera is 2 $\frac{1}{8}$ x 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ in. and weighs 4.5 oz. Has been available in U.S.

Special purpose types

1: TELECA, Japan. Designed for sports, this camera utilizes 16mm film and is built in between a binocular system. May be used either as a 3X field glass or telephoto camera system. The eyepieces are individually focused and the interpupillary distance may be adjusted for comfortable viewing. The visual field of view approximates the field of view of the photographic objective. One shutter speed: 1/75 sec. The lens is an f/4.5, 87mm anastigmat in a focusing mount. The film is loaded from the top of the camera and is supplied in a double cassette. All exposure controls are easily accessible from the top. The instrument is equipped with eyelets and may be worn suspended from the neck. This camera is quite adequate for the average sport fan whose requirements are moderate. Satisfactory 4 x 5 in. prints may be made from the negatives. Size: 3 $\frac{3}{4}$ x 3 $\frac{1}{4}$ x 3 in. Weight: 19.4 oz. Available in Japan.

5: EXPO, U.S. This was one of the first so-called detective cameras. The outside appearance was that of the large railroad watches prevalent in that day (about 1915). The film used is unperforated 16mm and the format is 15 x 21mm. Shutter speeds are 1/50 and bulb. A fixed focus, fixed diaphragm lens is used, shooting through the stem of the "watch." This camera is capable of negatives sharp enough for suitable 5 x 7 prints. (*Continued on page 118*)

SUGAR and SPICE

Little girls aren't *all* sugar and spice. They whoop and run and jump and stick out their tongues, the little hoodlums, and are secretly made of just as many snakes and snails as small, energetic boys. While many photographers don't seem to have acknowledged this, and continue to make gentle portraits of the demure young innocent all starched and ruffled, here's an aspect of photographing young women which should not be overlooked.

Show them in action—skipping rope, playing kick-the-can, or racing across sand dunes, as did Elizabeth Hibbs in her extraordinarily natural shot of three girls and a dog. Or as did Barbara Morgan, whose two elfin types are enchanted and oblivious to the camera in the gyrations of a folk dance. Ed Wallowitch's young toughs in an outskirts section of Philadelphia are more than aware of the camera. Their deliberate "mugging" is another kind of typical spontaneity. His study of a girl, her hands moving out to catch a ball on the rebound, tells a different story—of a child playing alone. These are some of the many moods and mannerisms of little girls everywhere.

It's important about these pictures that they were taken from the child's point of view, as if the camera had entered the mysterious kingdom of childhood, unnoticed and down a few feet on *their* level. These children were photographed in the proportions of their world rather than isolated in that superficial domain of adults. What's *your* point of view? If necessary, lower the camera. This gives children the stature and identity which rightfully is theirs.

When children are around, be prepared to shoot fast for a spontaneous picture. On most cameras it is possible to pre-set aperture and shutter speed. All that's required is to have the shutter cocked, ready to shoot. What about focus? If your camera has a depth of field scale, and many do, you can easily ascertain, using any given stop, the area within which a subject will be in focus

Elizabeth Hibbs shot head-on, emphasized rollicking spirit of girls and dog tumbling across the sand. Low camera angle has heightened the importance of their sport. ▷





at any distance. (See *All About Depth of Field*, by Joseph Foldes, MODERN, July, 1952.) Then, when shooting fast, all you need to do is be quite sure that you are focusing within the limitations of these distances. Suppose you are using a typical 35mm camera with standard 50mm lens. Your aperture is f/8. If you focus on a child playing about 12 feet away, your depth of field scale will probably tell you that everything between 8 and 25 feet will be sharp. A twin-lens reflex with 80mm lens, stopped down to f/11 and focused on a subject at 10 feet, usually will render everything in sharp focus from $7\frac{1}{2}$ to 15 feet. This leeway allows your subject to move about, and assures you sharp pictures at the stop you use. Remember, when focusing on a nearby subject, as you open up the lens, depth of field falls off to a greater or lesser extent depending on the camera being used. This causes background objects to become unsharp, which is often desirable.

If possible, select a working aperture which gives you room enough to move around your subject, lets her play

freely within an area, and at the same time minimizes the background so that it will not distract from the expression or action you want to bring out.

Don't be discouraged if you are wielding a box camera that doesn't let you adjust aperture and shutter speed to stop motion. Even if she is in moderate action, your subject will be in focus if she is more than six feet from the camera. Be careful, however, about the angle of the camera in relationship to the direction of the child's movement. That is, if she's running toward you, there will be less chance of blur than if she were running past the camera from left to right, or even at a slight angle. With this type of equipment it is a good idea to pan the camera along with the subject, making the exposure at the peak of her action. This should blur the background just enough to hold the subject in focus as the center of interest.

To be sure, sugar and spice *are* nice. But for a fresh naturalness in your photos, watch for "sticks and stones" moments of little girls in action.—Dorothy Jackson

Small pixies dance for Barbara Morgan in the fields of a summer camp. She shot from a middle distance, focused to include just enough detail in the landscape that gives a fairy-tale bewitchment to these camera-unconscious performers. ▽





△Philadelphia young fry riotously gesticulate for the benefit of Edward Wallowitch. He moved in on the ladies and was able to focus with a sufficiently wide aperture to keep alley atmosphere of background subdued.



△Wallowitch photographed this lone urchin from a high angle without belittling her. She was concerned with bouncing her ball off a nearby wall. Tense, blurred hand waits for the "catch."

a simple filing system

EARL LEAF EXPLAINS HOW HE KEEPS TABS ON 40,000 NEGATIVES

CAN YOU lay hands upon any negative in your collection in a matter of seconds? Is each negative protected from scratches and supported by a contact proof that can be referred to for study or caption data?

If not, you can spare yourself a future headache by setting up an efficient filing system *before* your negatives number into the hundreds. This is something I learned from experience. My first thousand unfiled negatives were more of a nuisance than the entire 40,000 negatives I now have on file for instant use.

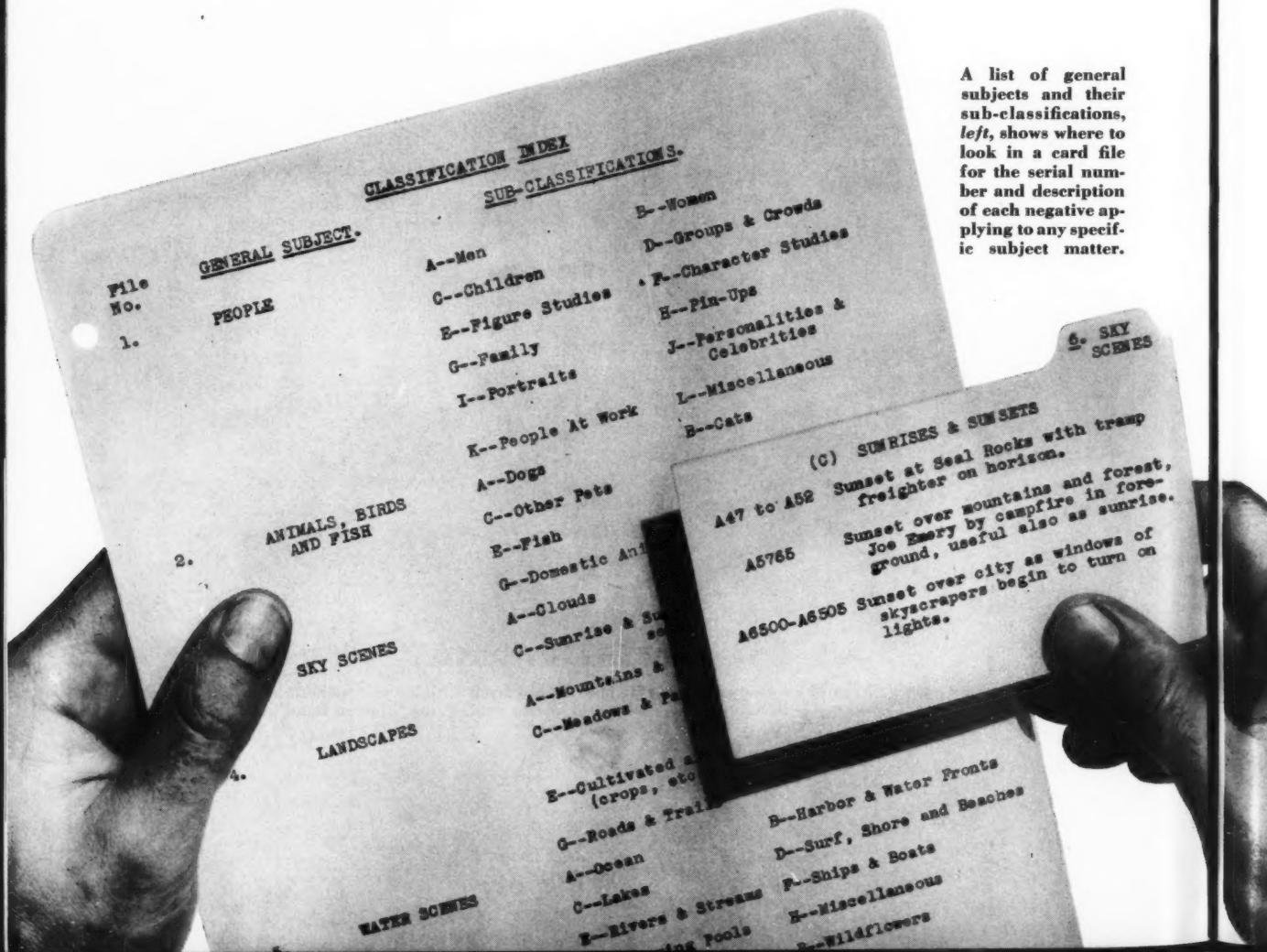
The keys to the system

While the filing system I use is tailored to my specialized needs, a number of my friends have found it adaptable to their needs as well. Briefly, the three keys

to this system are: 1. a master file of negatives, each of which bears a serial number in the clear border at the side or bottom; 2. a loose-leaf notebook in which a contact print from each negative is pasted; 3. a card index file in which each serially-numbered negative is classified according to its specific subject matter.

This is by no means as complicated a system as it may sound. Supposing, for example, I want a sunset shot which includes a human figure in the foreground. Under the general heading "Sky Scenes" in my card index file, I locate the sub-division devoted to "Sunrises and Sunsets." Here I find a description of several negatives which hold promise of filling the bill.

A glance at the serial numbers on these negatives sends me to the right contact-proof album (I have many such



A list of general subjects and their sub-classifications, left, shows where to look in a card file for the serial number and description of each negative applying to any specific subject matter.

6. SKY SCENES

(C) SUNRISES & SUNSETS
A47 to A52 Sunset at Seal Rocks with tramp freighter on horizon.
A5785 Sunset over mountains and forest, Joe Emery by campfire and foreground, useful also as sunrise.
A6500-A6505 Sunset over city as windows of skyscrapers begin to turn on lights.

B-Harbor & Water Fronts
D-Surf, Shore and Beaches
F-Ships & Boats
H-Miscellaneous
N-Wildflowers

B-Roads & Trails
A-Ocean
C-Lakes
E-Rivers & Streams
G-Cultivated areas (crops, etc.)

B-Harbor & Water Fronts
D-Surf, Shore and Beaches
F-Ships & Boats
H-Miscellaneous
N-Wildflowers

that works!

albums) to pick out the picture best suited to my needs. When I have selected the picture I want to enlarge, the serial number again enables me to turn directly to the specific negative I want in my master negative files. And that's all there is to it!

In setting up a filing system of this type, the first step consists of giving each negative a serial number. This is done with india ink (ordinary writing ink won't do) on the clear margin of each negative. The numbers should be printed on the shiny side of the negative, as shown in *Step 1*. If this surface doesn't accept the ink well, moisten the clear area with carbon tet and let it dry before you continue with the numbering.

Negatives are numbered in sequence *regardless* of their subject matter. I found it best to begin with A-1 and continue through A-9999, then start a new series beginning with B-1. When a serial number contains more than five figures, it becomes confusing and the danger of making errors increases.

Making contact proofs

A contact proof should be made of each negative. By numbering the negatives *before* contact proofs are made, the serial number is automatically printed in white in the margin of the actual proof itself.

I make contact proofs the easy way as shown in *Step 2*. In the darkroom the negatives to be proofed are simply placed on the enlarging paper, weighed down with a sheet of glass, and exposed briefly to white light. The exposure time, which varies according to the density of the negatives and the strength of the light, is determined by trial and error. After being exposed, the sheet of enlarging paper is processed in the usual way.

A sheet of 8 x 10 paper will provide contact proofs of four 4 x 5-inch negatives, twelve 2 1/4 x 2 1/4-inch negatives, or thirty 35mm negatives, as shown in *Step 3*.

Filing your negatives

For the sake of neatness and convenience, I suggest that you use separate file boxes for different negative film sizes. Trying to file 4 x 5 cut film, roll film, and 35mm negatives together in consecutive order becomes awkward and confusing. Within each film size, negatives can easily be filed in numerical sequence.

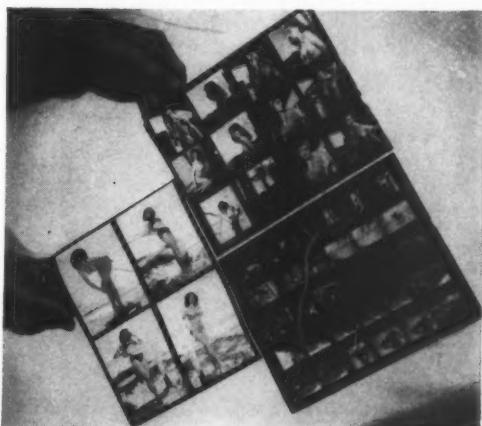
Roll film can be cut in strips to fit the width of your filing cabinet, and placed in glassine or cellophane envelopes. Each en-



STEP 1. A serial number is printed on the border of each negative in india ink. The serial numbers alone bear no relationship to the subject matter.



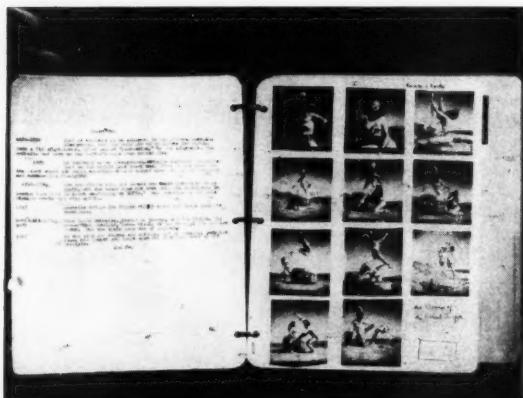
STEP 2. After they have been numbered, negatives are contact-printed on sheets of 8 x 10 inch enlarging paper as explained, left, in the text.



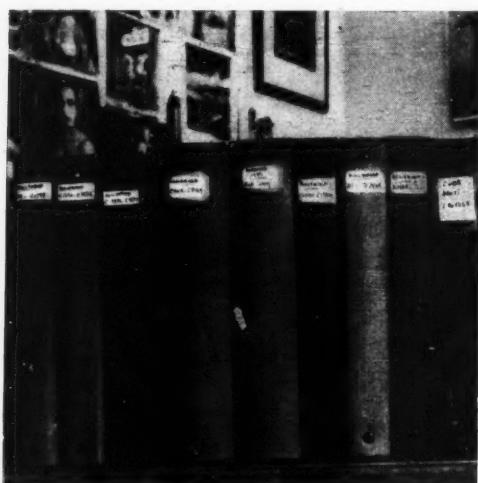
STEP 3. These sheets of enlarging paper contain contact proofs of three different sizes of negatives. Serial numbers, not visible here, appear in white.



STEP 4. Contact prints are mounted on only one side of each sheet of notebook paper. Mounting is done in numerical sequence, not by subject.



STEP 5. The reverse side of each sheet of mounted proofs contains caption data typed on thin tissue that can be fastened in place with rubber cement. See text, right.



A portion of the author's collection of loose-leaf albums of contact proofs. Note that each album identifies serial numbers of its picture contents.

velope should be marked with the serial numbers of the negatives it contains. You can safely place several strips of negatives in each envelope if you clean them carefully beforehand.

Some photographers prefer to cut out and throw away impossible negatives, others keep even the hopeless negatives on file. This is a matter of personal preference, but the cutting involves additional handling and results in short (single frame) strips of negative which are more difficult to locate in an envelope.

With your negatives carefully tucked away on file, you can now turn to the contact prints. Study them under a reading glass to determine sharpness, and consider them from the standpoint of composition, mood, storytelling qualities, or whatever it is you want from these photographs. Decide which are worth keeping and which are valueless. Then discard all the bad prints. Nothing destroys the value of superior pictures more than mixing them with worthless ones.

The cream of your contact prints are now ready to be mounted in a three-ring, loose-leaf binder (page size 8½ x 11) which can be obtained at any stationery shop or dime store. I suggest you buy yellow or buff filler sheets. These cost more than ordinary white fillers but are made of paper which does not curl so easily.

You must now decide whether to paste up your contact prints according to subject matter or numerical sequence. I personally favor the latter. With your negatives filed in numerical sequence, it is logical to file your contact proofs in the same manner. Your file index cards will provide a breakdown of subject matter and supply the serial numbers of all negatives which apply to a specific subject. However, if you cross-index your negatives, an album of contact proofs classified according to subject matter will require duplicate proofs for each classification into which a negative might fall.

In pasting up your contact book, it is best to use an adhesive which does not become brittle upon drying. Rubber cement is ideal for this purpose. I suggest that you mount the proofs on one side of a page only, leaving the reverse side for caption material. Rather than damage a page of contact prints by rolling it through a typewriter, I type the caption data (the date a picture was shot, locale, the names of people appearing in a scene, exposure data, etc.) on thin (onion skin) paper which can be cemented on the back of each sheet.

With both your negatives and contact prints in order, the decks are clear to set up your index files. The Classification Index chart on page 65 lists a number of the "general" subject headings and related sub-classifications that I use. In setting up your own classification guide, you will naturally add new headings or modify the sub-classifications to suit your own needs.

One or more 3 x 5-inch file cards should be prepared for each major and sub-classification desired. These cards needn't go into detail about the pictures they refer to; this information is available on the caption sheets in the contact albums. The purpose of the cards is to tie pictures together by *subject matter* so they can easily be located (by serial numbers) in the contact and negative files.

SUBJECT CLASSIFICATION INDEX

1. PEOPLE

(A) Men (B) Women (C) Children (D) Groups & Crowds (E) Figure Studies (F) Character Studies (G) Family (H) Pin-Ups (I) Portraits (J) Personalities & Celebrities (K) People At Work (L) Miscellaneous

2. ANIMALS, BIRDS, FISH

(A) Dogs (B) Cats (C) Other Pets (D) Birds (E) Fish (F) Wild Life (G) Domestic Animals (horses, sheep, cows, pigs, etc.)

3. SKY SCENES

(A) Clouds (B) Stormy Skies (C) Sunrises & Sunsets (D) Miscellaneous

4. LANDSCAPES

(A) Mountains & Hills (B) Valleys (C) Meadows & Pastures (D) Deserts & Plains (E) Cultivated Areas (crops, etc.) (F) Forests & Wildlands (G) Roads

5. WATER SCENES

(A) Ocean (B) Harbor & Waterfronts (C) Lakes (D) Surf, Shore & Beaches (E) Rivers & Streams (F) Ships & Boats (G) Swimming Pools (H) Miscellaneous

6. FLOWERS, VEGETATION

(A) Cultivated Flowers (B) Wildflowers (C) Plants & Shrubs (D) Trees (E) Gardens & Lawns (F) Miscellaneous

7. GENERAL SCENES

(A) Sidewalks & Streets (B) Industrial (C) Parks & Playgrounds (D) Night (E) Vehicles, Traffic

8. BUILDINGS, STRUCTURES

(A) Skyscrapers (B) Architecture, unique (C) Homes & Dwellings (D) Country Houses & Barns (E) Monuments & Statuary (F) Walls & Fences (G) Interiors

9. SPORTS, HOBBIES

(A) Baseball (B) Football (C) Basketball (D) Skating (E) Photography (F) Camping & Hiking (G) Hunting & Fishing (H) Autos

10. ENTERTAINMENT

(A) Theaters & Shows (B) Parades (C) Dances (D) Parties (E) Music (F) Fairs & Fiestas (G) Contests & Races (H) Miscellaneous

11. SEASONS, WEATHER

(A) Winter (B) Springtime (C) Summer (D) Autumn (E) Miscellaneous

12. DESIGNS

(A) Shadow Patterns (B) Repetitions (C) Angles (D) Curves (E) "S" Curves (F) Misc.

13. STILL LIFE

(A) Tabletops (B) Miniatures (C) Misc.

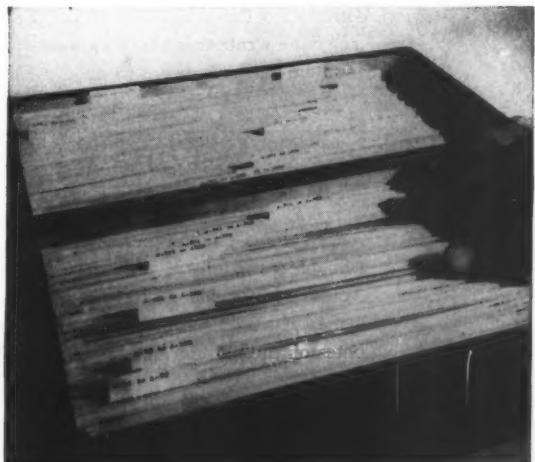
14. MISCELLANEOUS CLASSIFICATIONS

(A) Documentary (B) Pictorial (C) Genre (D) Unclassified Subjects

The first line of a typical index card might read: No. 3, *Sky Scenes*, (C) *Sunrises & Sunsets*. This means that the general subject, *Sky Scenes*, occupies the third compartment or division of the index file, and that pictures of Sunrises and Sunsets are listed on a sub-classification card identified as C.

One of possibly several entries on the card reading: A5765 *Sunset over mountains and forest. Joe Emery by campfire, etc.* would send you straight to the album containing a contact proof of this negative. If you decided to make an enlargement, the size of the contact print would indicate which file (in case you produce several sizes of negatives) holds negative A5765.

Basically that's all there is to this system. My personal setup would call for cross-indexing the picture described above under the following general headings and sub-classifications: No. 9—*Sports & Hobbies*, (F) *Camping*; No. 1—*People*, (A) *Men—Joe Emery*; No. 4—*Landscape*, (A) *Mountains and Hills*. But if you don't feel you need an elaborate cross-index, don't bother with it. The idea is to keep your filing system as simple as you possibly can—and still get the job done.—THE END



One of the author's several master negative files. This file contains strips of $2\frac{1}{4} \times 2\frac{1}{4}$ negatives in glassine envelopes. They are arranged in sections by serial numbers.

LEONARD BALISH

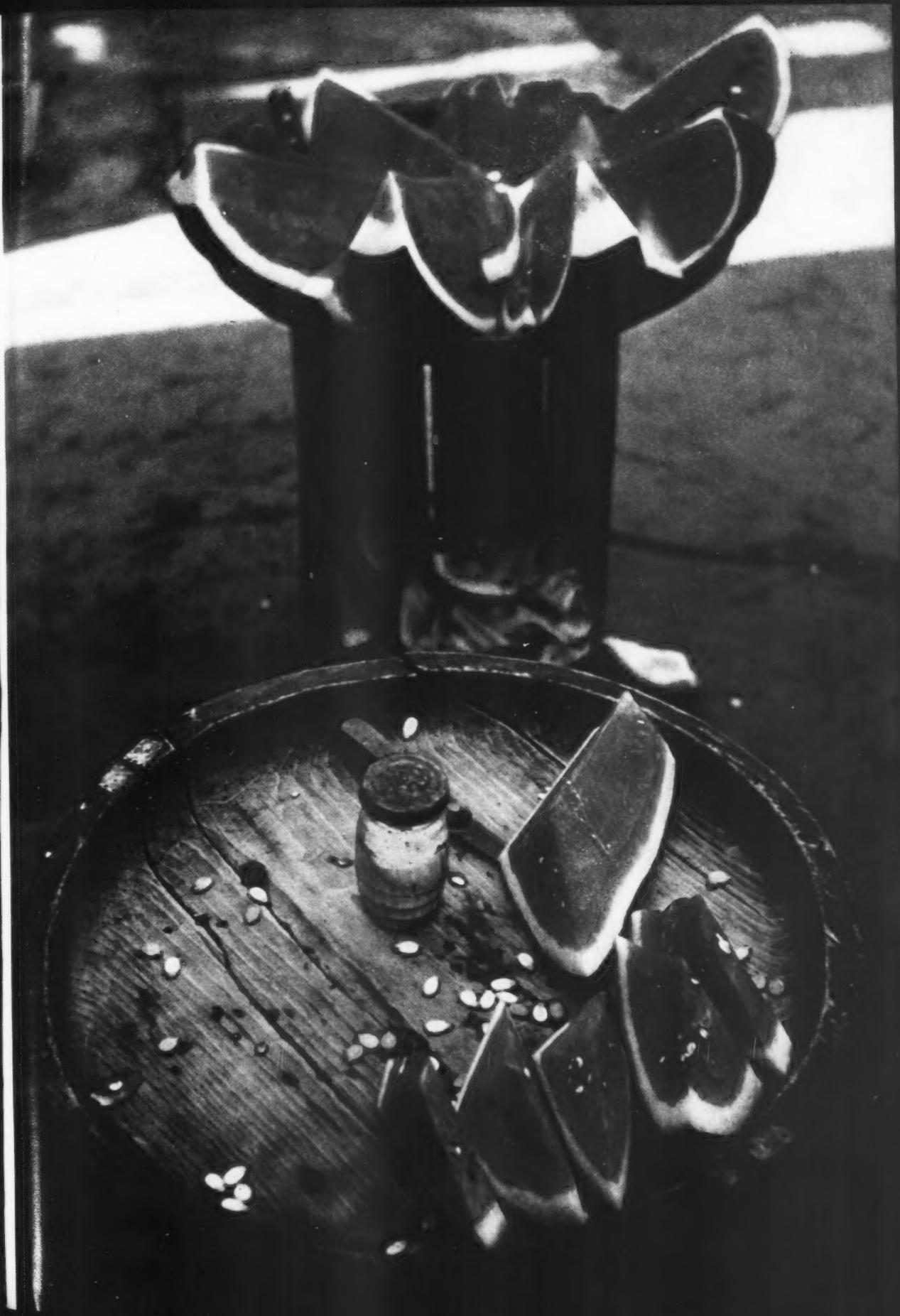
A NEW CAMERA EYE

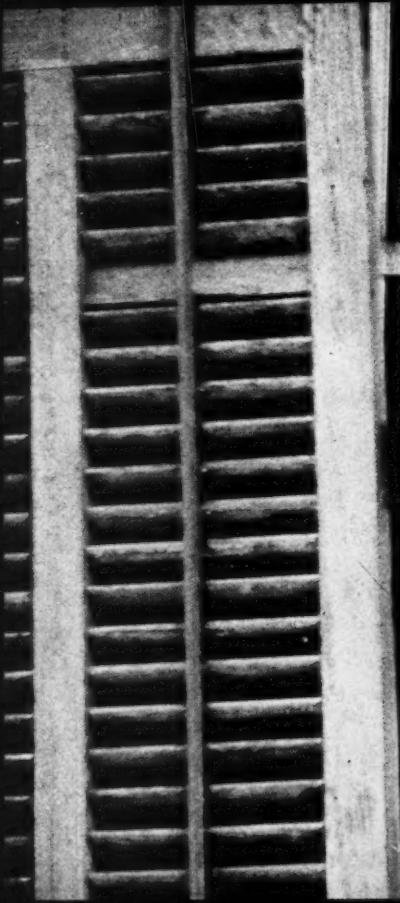
On these six pages: the work and personal statement of Leonard Balish. Mr. Balish, who earns his living as a personal representative for such photographers as Ronny Jaques, Tosh Matsumoto, Lionel Freedman, is more than familiar with the economic problems which confront the professional photographer. And recently he's come up against another stumbling block—the frustrations which face the exploring creative amateur who works opposite to the established criterion of the majority. Four years ago he bought his first camera—frankly, to take visual notes for his first love, painting. (He has been a painter for 15 years, has been represented in major national shows and gave a critically successful one-man show at the Creative Gallery, New York City, in 1950.) At some point the images he saw in his viewfinder became photographs and at that crucial moment—recognizable to all photographers—he discovered a new medium of expression. He entered some of his first photographs in amateur competition in the controversial Baltimore Salon of 1952. This show, the first to be judged by a panel of artists, produced some of the liveliest photographic controversy of 1952. And Balish found himself the focal point of much of the argument. One of the judges, Benton Spruance, professor of fine arts at Beaver College in Philadelphia, said of Balish's Gold Medal Award print: "In the little picture that I loved so of the three guitars, I feel there is elegant design. It was caught at a moment of unawareness, almost, and yet the photographer has isolated that fragment, has bounded it with four edges and has put into those four edges a splendid movement esthetically and an implication of a kind of humanity which belongs to the guitars. . . . As I said before, if the photographer can learn to incorporate his love of the world with good design then I think he'll make good pictures, so will the painter, so will the sculptor, so will the musician." In contrast to these pleasant words, an irate subscriber to the now defunct *The Camera* magazine wrote this about the same photograph: "If that is called a good picture, and an amateur like myself has to produce similar results to win a prize, then it's time for me to get rid of six expensive cameras and take up knitting."

35 MM SERIES

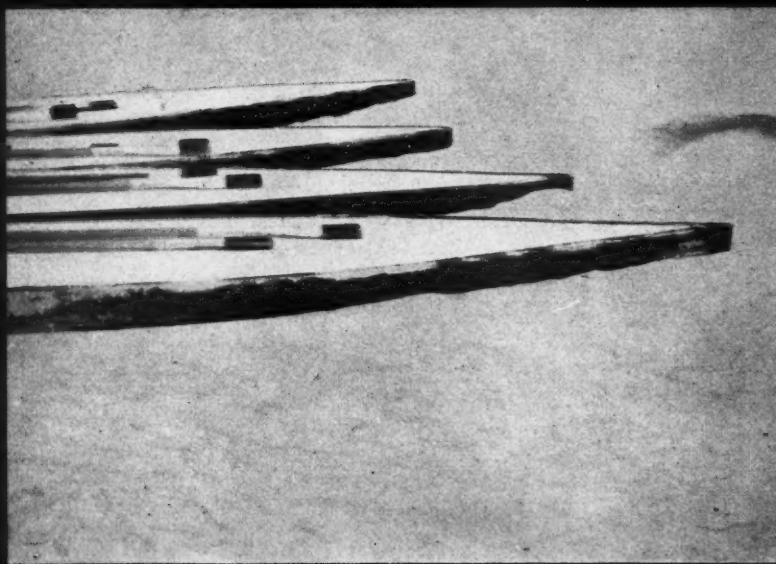
We asked Balish to write for us a statement (Page 71) explaining why he takes his off-the-beaten-track photographs, what his feelings are about photography as a creative medium, and what motivates him to record the particular personal world which his work reflects. Often the photographer who places primary value on expression misses the boat when it comes to technique. Not so in this case—as a study of these pages will show. A sure sense of composition, a mastery of the tools of the medium, make each visual statement strong. Technical notes on the photographs will be found on page 124. —Jacquelyn Judge

Watermelon, Toluca, Mexico. ▷





Window, New Orleans



Surfboards, Acapulco



Carriage Wheels,
New York City

Flowerpot Holders, Mex. City





**Top, Autumn leaves,
Connecticut.**

**Left. Red lantern,
New York City.**

Note: Technical information
on these photographs will
be found on page 124.

THE WHY OF MY PHOTOGRAPHY . . . BY LEONARD BALISH

Today but a handful of spirited photographers carry on in the tradition of men like Strand and Weston. There are few who work with as much creative drive and searching experimentation as Man Ray or with as much integrity and perception as Cartier-Bresson or W. Eugene Smith. Not that the world lacks "talent" but rather that for the greater, and I suppose happier, majority of both amateur and professional photographers work has ceased, or really never was, the vital and exciting experience it was meant to be. It would be foolish not to acknowledge the limitations placed upon photography by the external forces of economics in regard to the professional photographer. It would be just as foolish not to recognize how easily current fads seduce the amateur in his quest for recognition and popular acceptance. However, in spite of the frustrations and limitations it would be just as wrong to negate photography's greatest role, yet to be fully consummated, that of its acceptance as one of the creative arts, comparable to painting, music, and sculpture. The question then, best asked of the new people who wish to be part of this drive to use photography as an art medium, is: "From what point do I begin and toward what direction do I go?"

IT IS MY BELIEF that the first step for those who wish to express their ideas and emotions in a free, creative spirit, is to break away from the canon that allows for no change, that decries deviation from set standards of critical review and judgment. Of course, in an organized society many rules are necessary if man is to be spared chaos. Contrariwise, in creative art forms (and we photographers must now be willing to assume photography has come of age), it is essential that the working artist keep, above all else, an open mind and heart—and eyes.

There are many object lessons to be learned from the histories of other art forms. All seem to parallel each other, and all repeat the age-old pattern of rise and fall. Time points up only too well the beginnings of an art which starts primitively, with emotion and

idea as the prime reason for the expression of the person. There is, in this early stage, a vitality and validity that in no way suffers because of the lack of technique. Then time passes, the art form develops. Man becomes more and more adept in stuffing his head with rules. The art form ceases to be a personal expression and caters to the current fashion, to a new blessing—material rewards. Conformity to commercial demands swamps the need for personal statement altogether. In time the art form is decadent with stylish nonsense. Of course, the artist has mastered technique and works with facile skill. But he works no longer from creative drive. The artist embellishes and embellishes, but he adds little of real value to his medium. At last a new feeling stirs in the minds of those who are bored and stifled by these hot-house products.

PEOPLE ARE REMINDED of essentials, of personal integrity, of the artist's need to see with *his own eyes*, to create out of his basic need for self-expression. Be the individual statement of great value or of minor personal importance, the sole reason for attempting any art form returns. The art is re-examined in a resurgence of spirit and meaning.

Since photography is a little more than one hundred years old, it seems unbelievable that so many established rules and societies exist to plague its growth and fruition. Yet this seems to be the unfortunate case. Although a small group finds limited audiences in the larger cities, the vast amount of working photographers today conform and pay lip service to the salons, sure-fire commercial formulas, and accepted standards of approach.

A number of years ago and as a result of being professionally involved in the world of photography, photographers, and their practices, I found myself succumbing to the lure of the camera. I think I originally bought the camera to use as a means of documenting ideas and things I later wished to work up into painting studies. It seems odd to say now, but in so many ways, in spite of the (dwindling) limitations (*Continued on page 123*)

professional 35 MM film developing

by ARTHUR KRAMER

It's one thing to take a good picture. It's another to process it so that it remains one. And unfortunately many good 35mm efforts are being ruined in darkrooms—not just through sloppiness but from a plain lack of knowledge and the proper techniques. Few 35mm workers know how much can be gotten from their films.

When a professional 35mm worker hasn't the necessary time, patience, or facilities to process his own film, he often turns it over to Modernage Photographic Services if he's in New York City. Each day this lab's technicians process hundreds of 35mm rolls, many taken under the most trying lighting imaginable.

The amateur or semi-professional photographer cannot possibly duplicate Modernage's facilities. But Modernage's technicians have helped to work out exclusively for MODERN's readers 35mm negative developing systems based upon their own experiences. If followed, they will yield results superior to those obtained by many professionals in the field.

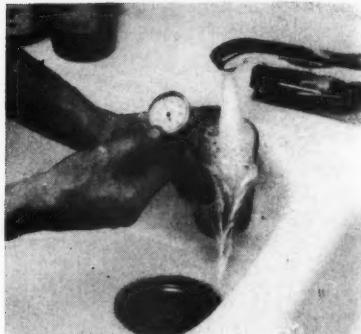
A step-by-step system using a small tank is explained on these two pages. This may seem elementary to a number of workers. Nevertheless, examine the steps carefully. We will assume the tank is loaded with a 35mm film ready to be developed. If you're not using fresh developer, a suitable replenisher should be added to keep the solution at full strength. If you don't have the replenisher, or none is available for your developer, development time will have to be increased for each roll of film processed. Also check your hypo for freshness. If you're not familiar with these preparatory steps, see *Notes on Solutions*, page 109.

Although many workers prefer to follow their time and temperature tables religiously without ever taking a look at the film during developing, many professionals, including Modernage technicians, develop by inspection—that is, they examine the film during development to see that the negatives are properly processed. If you develop by inspection, it's possible to take out properly exposed film when it has developed normally, leaving the underexposed negatives in for prolonged development. Such practice is not easy to learn but a good method of acquiring the knack can be found on pages 74 and 75. The techniques of fine-grain processing or using so-called high speed developers for "pushing" film ratings are important. These are discussed on pages 74 through 77.

Although most workers will find it more convenient to use packaged developers, some may want to try their hand at mixing their own. On pages 76 and 77 will be found information concerning the mixing of Kodak D-23 and its extreme fine-grained derivative, D-25.

In reading over all sections of this article, you'll find that there's no one universal formula, no one perfect processing method. Much is simply compromise. But by careful exposure and development you can learn to compromise effectively to achieve just the results you wish.—THE END

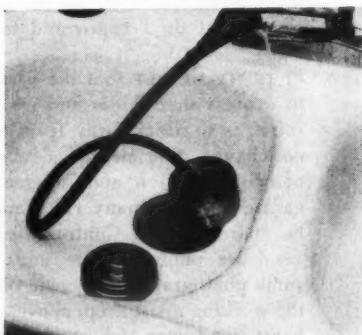
HERE IS ONE EFFICIENT



1. Adjust your tap water so it runs at 68° F. Use a graduate to gather it for a thermometer reading. Make sure that both hot and cold water have reached their extremes before attempting to adjust the temperature.



5. If tank does not have an agitating rod but has a cap atop built-in funnel, agitate by inverting tank, holding tank cap on with palm of hand. Repeat operation two times. When not agitating, tank in 68° water tray.



9. Continue agitation during fix bath. Follow fixer manufacturer's instructions for length of time. Then pour into fix bottle. Remove tank top. If reel has hollow core, run hose through it. If hollow rod, fix hose over it.

METHOD OF DEVELOPING 35MM FILM IN A DAYLIGHT-TYPE TANK.



2. Fill sink with water at 68 degrees. Bring developer and hypo to about this temperature by placing bottles under cold or warm water. Place both bottles in sink until solutions reach 68°. Check sink temperature often.



3. When developer reaches 68 degrees, pour into a graduate just the amount needed to properly fill your developing tank. Before using graduate, bathe it in 68° water so it also is at correct developing temperature.



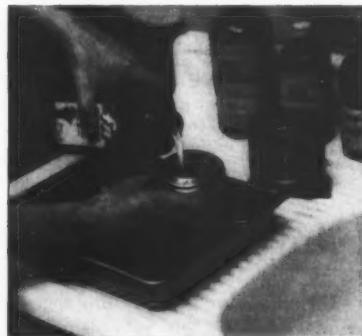
4. Prop tank at a slight angle to facilitate pouring. Pour developer as rapidly as possible into the tank. Start timing development when pouring begins. It's a good idea, however, to pour over an empty tray to catch spillage.



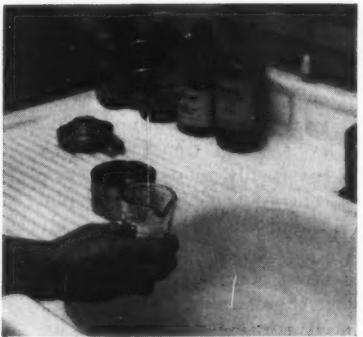
6. Complete each agitation by rotary motion. Repeat agitation by developer manufacturer's directions. Correct and consistent agitation is absolutely essential if developer is to behave in the manner manufacturer promises.



7. At end of developing time, pour solution back into empty graduate (see replenishment instructions, page 109). Refill tank with plain 68 degree water, or acetic acid stop bath which cuts off development, conserves hypo.



8. Rinse for 1 min. in water or 30 sec. in acid stop bath. Then pour out and discard. Pour in fixer at 68 degrees. If you pour directly from bottle, hold over tray to catch overflow. It's better, however, to use graduate for pouring.



10. Rinse at 68 degrees with hose. Make sure water enters bottom of tank, then rises through film to top. Use fairly rapid water flow. After 30 min., remove reel, catch drippings to be used in hypo elimination test.



11. Pour DuPont Wash Test into graduate of water drippings. Note reaction. If solution remains clear (as here) continue washing. If solution turns completely blue, there is no trace of hypo present in wash water.



12. Bathe reel in wetting agent such as Kodak Photo-Flo; follow manufacturer's directions for amount, method of use. Don't wipe film, hang it by clips in dust-free dry room where people are not likely to pass closely by.

IF YOU'VE MIXED UNDER AND OVEREXPOSED SHOTS ON ONE ROLL, IF YOU



1. To learn developing by inspection, you'll need green safelight such as Wratten Series 3, scissors, two wind-on tank reels and an extra tank, if yours can't hold two reels at once. Also a graduate of rapid fixer. Pre-Bath type Kodak Desensitizer, 8 oz. bottle, makes one gallon working solution. For first attempts at inspection, select evenly exposed test rolls of film.



2. Pour desensitizer into loaded tank at 68° F. After 2 min. pour out, rinse with water 10 sec. Begin development as you would normally. Turn off white light. Accustom your eyes to safelight. When development's half over, remove reel from tank. Hold partially unwound film 1 ft. from safelight. Look at images by reflected light for no longer than five seconds.



3. Now cut off first frame. Drop into rapid fixer. Return reel to tank. Close tank. Then turn on white light. Compare actual negative density with remembered safelight density. Repeat with second frame at three-quarter development time. Then third frame at full development. In this manner you learn how fully developed negative looks under darkroom safelight.

PHOTOGRAPHS CAN BE MADE IN POOR LIGHT WITH FAST LENSES PLUS

The search for greater film speed is as old as photography itself. While in olden days film manufacturers often made extravagant claims as to their product's speed, today film makers are quite conservative. Many photographers have found that the printed ASA or Weston ratings can be doubled and still produce excellent results (if films are not developed in an extreme fine grain formula).

In recent years numerous new supersoups and super-supersoups have appeared advertising tremendous increases in film speed ratings. And it has become the fashion to toss off remarks about shooting at ASA 800 or more with film rated at only a fraction of that. Such rating is improper since only official Weston or ASA ratings can be labeled ASA or Weston. Ratings of 800 or so are photographers' personal ratings. But just how are these 800 ratings accomplished?

The official exposure recommendations of film manufacturers are based upon producing a negative with detail in the shadows and in the highlights while properly recording the in-between tones, processed in a "standard" developer. The latitude of the film permits a certain amount of under or overexposure. If we cut exposure so that we are exposing only for the highlights and middle tones we can "rate" the film much higher than the manufacturer. We can further "increase the speed" by overdeveloping the negative. What happens? Actually we may lose shadow detail by underexposing and increase grain-

ness by overdeveloping, but we can have good middle tones and highlights which are printable. If our original subject has pronounced shadow areas, the loss of these will be obvious. Therefore, greatest film speed can be achieved where shadow areas are negligible or unimportant. This is the theory of pushing film speeds. Now let's look at the problems it creates.

The longer we develop a film, the greater the contrast. Bright highlights take on a terrible harshness while shadows appear on the print as black areas. Very long development times also cause chemical fog which tends to degrade quality if the fog is excessive. A small amount of fog sometimes is helpful in reducing contrast slightly.

Therefore if we are to "push" our film, we must avoid combinations of film and developers which produce high contrast and high fog levels. Such films as Kodak Super-XX or Ilford HP3 are usually good choices since they have inherently low contrast and high official film speeds. High speed materials unfortunately are relatively coarse grained and have a greater tendency to fog than the slower, finer grained films. Since we're after speed, we'll have to sacrifice other characteristics.

For a developer we need a formula which, with extended developing time, will build density with a minimum of fog, keep graininess to a minimum, yet not build up too great contrast in the process. We should be able to force our highlights without blocking them and also register our middle tones adequately. Developers capable

WANT TO INSURE PROPER DEVELOPMENT, LEARN TO DEVELOP BY INSPECTION.



4. After learning how to judge a fully developed negative by inspection, put the knowledge to work. Here a Modernage technician discovers at the half way developing time that one negative was far overexposed. He can save it by cutting the frame from others and fixing it immediately. The remaining strips can be rewound onto separate reels, placed back in the tank.



5. Another example: processor decides pictures above scissors are fully developed; those below scissors, taken in poor light, are still too thin. He cuts negatives apart. Satisfactory negatives are rewound on reel which is placed in large graduate of hypo; others are rewound on second reel, returned to developer. He'll examine again shortly to note improvement.



6. Completely processed negatives should be inspected by light reflected from white card. Remember how negatives looked under safelight. Compare against finished result. If you've trouble seeing under green safelight, try using Anso Pinakryptol Green desensitizer, yellow safelight. Directions are on package. Other desensitizers available. See your dealer.

SPECIAL EXPOSURE AND DEVELOPING TECHNIQUES

of such action have low contrast-maximum speed characteristics.

Kodak D-76 has long been standard with photographers who wanted maximum film speeds. It is often used in comparison tests with new high-powered developers and has often proved as good as or better than many of them. It's still used by many photographers in its original form. With a negative exposed under favorably even lighting, with little shadow areas, "speeds" of 600-800 have been attained. For even greater "speed" some workers have further modified D-76 into D-76F by adding 270 grains of Borax per quart of D-76. This, however, is quite a harsh, grainy developer.

Promicrol, a British import, has gained wide acceptance as a low contrast-maximum speed developer for the way it combines a possible high film speed rating, relatively fine grain, a low fog level and an ability to keep highlights from blocking unprintably.

The manufacturer's instructions advise that films to be developed in Promicrol be given one-half to one-third normal exposure if adequate rendering of shadow detail is of primary importance. If it isn't important or the lighting is flat with little shadow area, it's obvious that exposure can be curtailed even further, simulating film speeds of 600 to 800 in some instances.

In most cases, discussion of film ratings of 800 or so is purely academic. The lighting conditions that would make a rating of 800 necessary usually are such that

most exposure meters won't even register a reading. In such poor light, the photographer is apt to open his lens to its widest aperture, set the shutter to the slowest speed he thinks he can safely hold, and trip it with a prayer that there will be an image on his negative. In such cases, developing by inspection is extremely helpful.

Suppose you shoot a half roll of film which will need maximum speed development, but wish to use the other half of the roll outdoors in sunlight. You could shoot at an extremely high film rating outdoors, then develop the entire roll in such a formula as Promicrol. You'd get a relatively good set of balanced negatives. But you wouldn't be taking advantage of the finest possible quality achievable outdoors with the film and light available. Instead, shoot the second half at the manufacturer's recommended ASA or Weston ratings. Then develop by inspection in a fine-grain developer. When development has progressed sufficiently for you to see the dividing line between the two sets of negatives, cut off the poorly exposed film and transfer it on another reel to a tank containing a maximum speed developer. Then return the normally exposed negatives to the fine grain developer. Thus you can process each set of negatives in the proper formula.

Amazing results can be gotten from modern developers. But remember that high speed is gained only at the expense of other desirable film characteristics. You must learn how and when to compromise.

But extreme fine grain and high film speed don't go hand in hand. ►

YOU CAN ACHIEVE EXTREME FINE-GRAIN RESULTS WITH 35MM FILM, BUT

Grain is the name given to the mottled appearance which is characteristic of every negative. It is not caused by individual silver grains alone but by the clumping together of many grains. You would have difficulty determining the graininess of a 35mm negative. But it can be seen quite clearly on enlargements. There it will appear as a sandy, salt-and-pepper effect, degrading the definition.

From the first days of 35mm photography, workers have been concerned with the problem of reducing graininess to a minimum. Grain more than any other factor limited the use of their tiny cameras and prevented them from being fully accepted by the recognized photographic authorities of the day. Since that time, films have gained much in quality. Grain has been reduced considerably, even in the fastest emulsions available today.

Much of the grain problem involves choosing the proper film (see *Which Film Will Do The Job?*, MODERN, Sept. 1953). But the developer can influence graininess. So can exposure and length of development. Unhappily, 35mm technique is largely a case of learning to compromise. Despite some developer manufacturers' claims to the contrary, extreme fine grain and extreme film speed

do not go hand in hand. Here's one method of obtaining extremely fine grain: double your normal exposure by halving the film's ASA or Weston rating and develop in modified Microdol. This is prepared by adding two tablets of Kodak Anti-Fog No. 1 to each quart of developer. Development time must be increased to 10 per cent over usual Microdol recommendations and agitation must be constant. This combination of doubled exposure and modified Microdol can give you amazingly fine-grained negatives capable of extreme enlargement.

In many circumstances you may not wish to lose the large amount of film speed necessitated by such a process. In such case there are other developers available which will yield somewhat less fine grain with normal exposure. Here are a few: Ansco Finex-L, Edwal Minicol, FR Super X-33, normal Microdol. They can be had in already mixed liquid or powder form. With such developers proper exposure at the film maker's ratings is essential. Pushing your luck by attempting to underexpose will necessitate additional development, increasing the graininess. It is true that normal development with heavily underexposed film will yield a fairly grainless negative but it will be

PACKAGED CHEMICALS ARE CONVENIENT; THERE ARE REASONS FOR MIXING YOUR OWN.

When professional films are sent to Modernage for processing, without instructions that fine-grain or maximum-speed developing is required, the films are developed in Kodak D-23. This medium-grain, low contrast formula is not available in packaged form but it can be made easily and is simple to modify into a fine-grain developer, Kodak D-25.

In its regular form D-23 can be "pushed" to simulate film speeds of up to 400. In its fine-grain form, D-25, negatives will compare with those processed in Microdol. One replenisher will serve both D-23 and D-25.

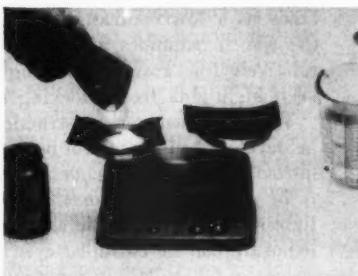
If you have the inclination to mix your own, you'll find D-23 and D-25 excellent formulas on which to learn the intricacies of measuring on scales. Over a period of time, mixing chemicals can save you an amount of money over packaged developers. To make a quart of D-23, dissolve completely $\frac{1}{4}$ oz. of Elon in 24 oz. of water at 125° F. Then dissolve 3 oz. 145 grains of sodium sulfite, dessicated, into the solution and add enough water to make 32 oz. Develop preferably by inspection, or for 15 min. at 68 degrees, with intermittent agitation.

D-25 is made exactly the same as D-23 except that half an ounce of sodium bisulfite is also added after the sodium sulfite. Develop preferably by inspection or for 35 min. at 68 degrees with intermittent agitation.

To make a quart of replenisher, DK-25R, dissolve 145 grains of Elon in 24 ounces of water at 125 degrees. Then dissolve 3 oz. 145 grains of sodium sulfite, dessicated; then 290 grains of Kodalk and add water to make 32 oz. You can develop 100 rolls of film in D-23 or D-25 if you add $1\frac{1}{4}$ oz. of DK-25R per 36-exposure roll for the first 50 rolls and $\frac{3}{4}$ oz. per roll for the next 50. It's best, however, to mix a new batch before reaching that far.



1. Here's what you'll need to mix D-23: brown quart bottle, tape for label, identical sheets of clean plain paper, thermometer, scale, with avordupois weights and a graduate.



5. If you happen to pour too much Elon, don't pour it all back and start over. Instead lift off the excess with the edge of a third piece of paper until enough is removed to balance scale.

YOU MAY HAVE TO SACRIFICE SPEED TO DO IT.

hopelessly thin, soft, lacking in the detail you may desire.

If you overexpose unintentionally, negative density will increase. And graininess increases with density.

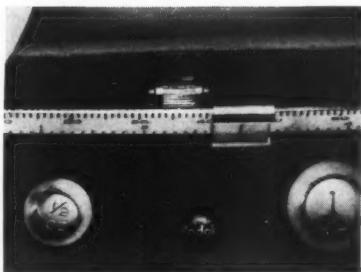
During development, recommended procedures (*pages 72 and 73*) must be followed where fine-grained 35mm results are desired. Temperatures of all solutions must be kept constantly at 68 degrees. Increases in temperature may induce overdevelopment and thus increase density. Lower than recommended temperatures may result in underdeveloped, flat negatives. Agitation, also, must be carried out according to the developer manufacturer's instructions. Too much agitation can have the effect of overdeveloping the negative. Infrequent agitation has the reverse effect plus possible streaking or uneven development. Although such processing errors may not drastically alter the quality of large-sized films, mistakes with negatives the approximate size of a large postage stamp can be disastrous.

The ideal fine-grained 35mm negative is full of delicate detail and appears to be slightly on the thin side as compared to a normal, larger negative. It will print well on a No. 2 or 3 enlarging paper. However, the combination

of low negative density and high paper contrast may produce slightly lower graininess than high negative density and low paper contrast.

There are a number of other factors which will affect the grainy appearance of your finished enlargement from a 35mm negative. Needless to say, the greater the enlargement the more noticeable will be the grain. Therefore, frame your subject closely in the viewfinder. Make certain your pictures are accurately focused. Graininess is more apparent in unsharp areas than in sharp ones.

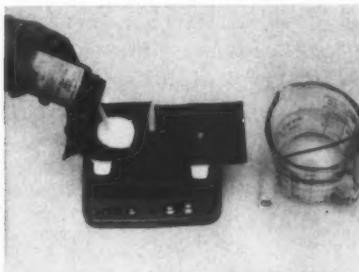
Thus we see that the problem of attaining fine grain with 35mm film must be kept in mind from the moment you begin to think about taking a picture. You should pick a medium speed fine-grained film. It should be exposed accurately at the proper ASA or Weston rating. The negative should have as great an over-all sharpness as it is feasible to produce. Framing should be as close as possible. A fine-grain developer is essential. Processing must be carried out under the most rigid control. Temperature must be constant and agitation consistent. The listed conditions must be fulfilled.



2. Balance scale before actually using it. Here knurled balancing weight can be seen behind scale's slide. Sliding weight indicator should be moved to zero position before balancing scale.



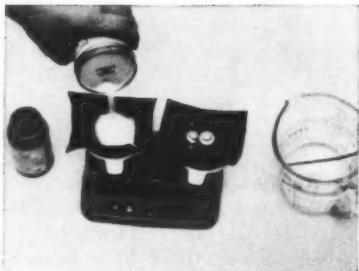
3. Chemicals will be placed on left plain paper, weights on paper on right. Crimp edges of paper on left to hold chemicals securely. Move indicator to zero. Scale should still balance.



4. With $\frac{1}{4}$ oz. (7.5 grams) weight on the paper at right, slowly pour Elon into the crimped paper on the scale's left cup until the pointer on the scale indicates that pans balance.



6. Dissolve the Elon in 24 oz. (750 cc) of water at 125° F. Stir slowly but constantly. Each chemical must be completely dissolved in the solution before next chemical can be added.



7. Replace the paper on the left pan with a fresh piece. After checking the scale at zero for proper balance, reset scale for 3 oz. 145 grains (100 grams). Pour out sodium sulfite to balance.



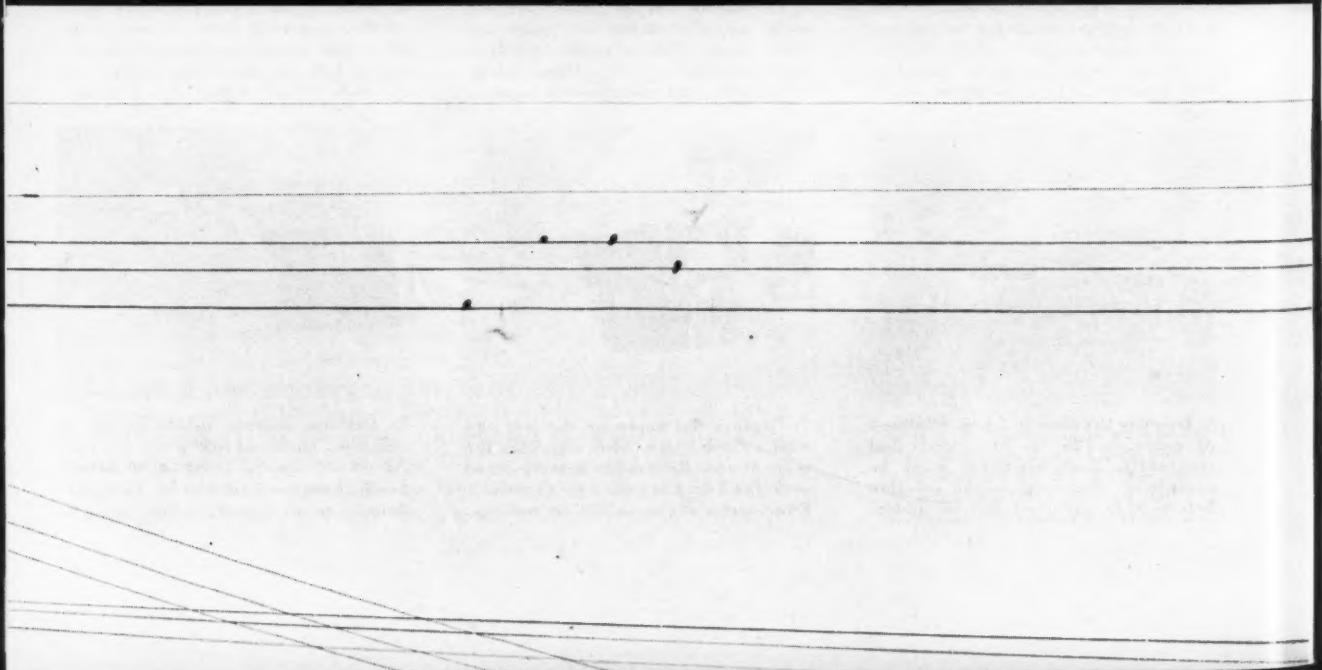
8. Dissolve sodium sulfite slowly in solution. Then add cold water to make 32 oz. (1 liter). Transfer to brown bottle. Label as Kodak D-23. Bring developer to 68 degrees before using it.

high key outdoors

**BERNIE CLEFF TELLS HOW—FROM
EXPOSURE TO FINISHED PRINT**

Clown was photographed with Rollei.
Super-XX film, 1/100 at f/8 against a solid
blue sky. Buildings which appeared in the
picture were opaqued out on the negative.


Cleff spotted a flock of birds sitting on tele-
phone wires. Then as he drew near all flew
away except four which made an even
more pleasing shot. Data: Rollei, 1/50, f/4.





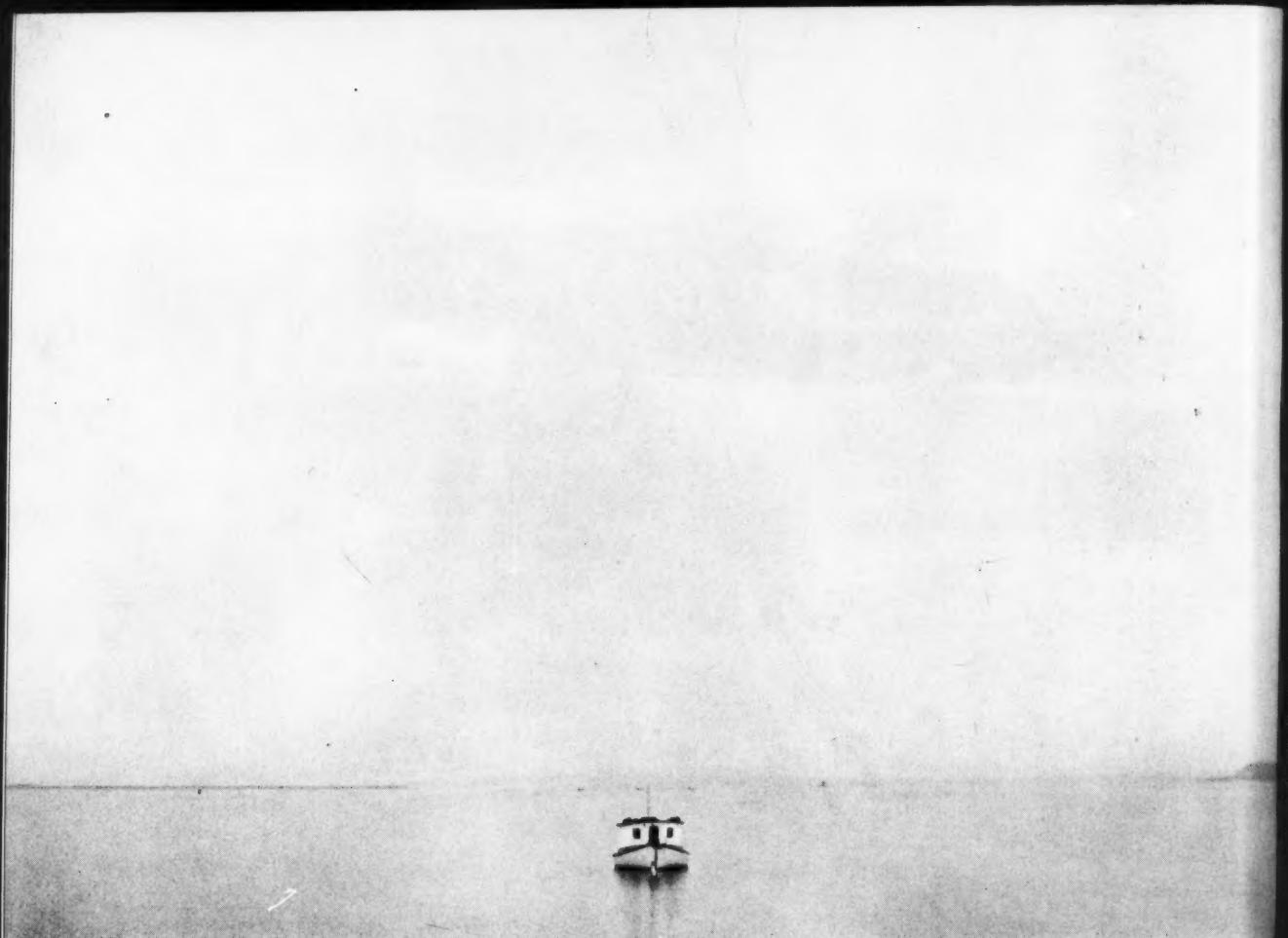
do you have outdoor photographic indigestion? Are most of your prints dark, cluttered and heavy? Maybe you need a touch of high key medicine. It's painless and will give you entirely different results.

Your approach must be simple. In normal middle or low key work you may go to considerable trouble to include a great deal of subject material in your picture. In high key outdoor photography you should confine it to a small area, so as to leave the major portions of the picture light. Then your result will depend upon two factors—subject interest and compositional placement in the final print.

First let's take up subject material. Look for subjects which can be photographed against the sky or large light backgrounds—don't use brick walls. Stucco, on the

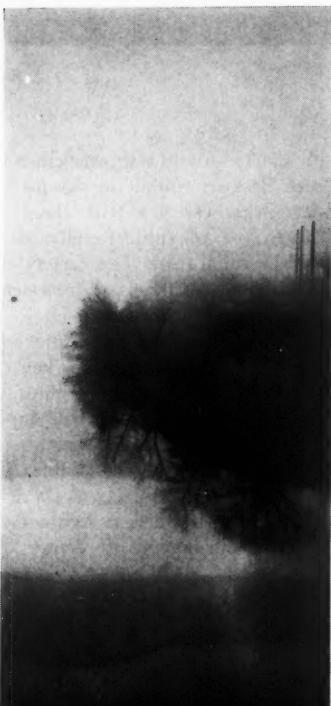
other hand, will do nicely. Avoid subjects close to the camera in dark dress. Best are middle or distant figures which you can place wherever you wish them in the viewfinder. The exact type of subject material to be sought is a matter of personal taste. The variety of subjects which lend themselves to high key treatment can be seen on these four pages, however.

Regarding compositional placement: Someone has said that position is everything in life. In high key this is certainly true. Although I admit to taking most of my pictures on the spur of the moment, it's still important to get the positioning exactly. Some pictures gain strength if the subject is placed in the middle. This is often the case with symmetrical subjects as the boat on page 80. If you're dealing with a human figure you may achieve best results by placing it off center, facing



▽ Water reflection on foggy day. Rollei, f/11, 1/50.

△ Boat in the rain, a favorite subject, f/8, 1/50 second.

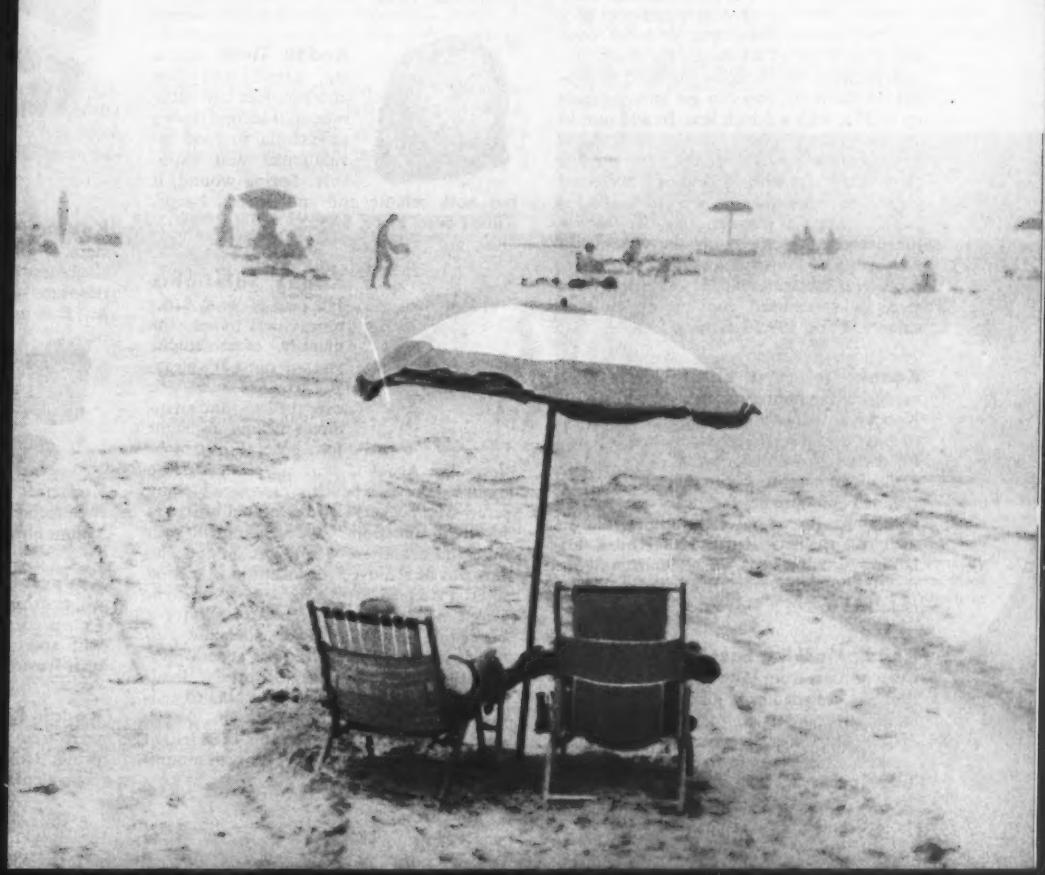


towards the largest part of print area (*such as on page 79*). When in doubt as to placement in your viewfinder, back away from your subject if possible and include more area in the picture. You can then experiment with various compositions while enlarging. One warning! While backing away, examine the edges of your viewfinder. Don't include in the picture something which may distract from your subject. Now let's see how three of the pictures on these pages were made and find what problems may arise after the picture is taken.

The mummer with umbrella (*page 79*) was photographed during a New Year's Day parade in Philadelphia against a plain blue sky which, when exposed with no filter, blocked up and printed nearly white. A few buildings which also appeared in the negative were removed by applying opaque, a reddish masking liquid, with a brush. You can get opaque or order it from your local photo dealer if you wish. Of course you may accomplish the same end by dodging during printing or by local reduction on the final print with Farmer's Reducer (hypo and potassium ferricyanide) as we shall see later.

I like to take pictures on (*Continued on page 111*)

Hazy day, 1/100, f/11.
Foreground was held
back during enlarge-
ment by dodging. Re-
maining dark areas
were bleached with po-
tassium ferricyanide.



The
Kodak
BULLETIN

How to bring your

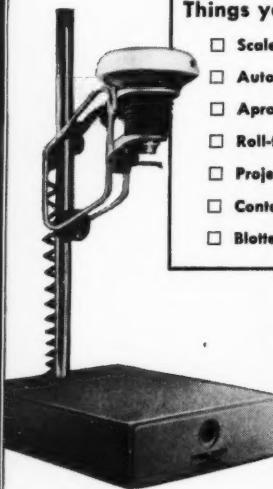
darkroom up to date

Things you'll have to have

- Enlarger
- Easel
- Trays
- Safelight
- Timer
- Thermometer

Things you'll want to have

- Scales
- Automatic tray siphon
- Apron
- Roll-film tank
- Projection print scale
- Contact printer
- Blotter roll



Kodak Flurolite Enlarger offers unique advantages from the planning as well as operating standpoint. The Flurolite's base offers a big, space-saving, light-tight storage compartment for paper. For planning your shelf layout, it measures 17 x

21½ x 5 inches. Plan, too, for head room above the shelf of 45 inches for maximum enlargements. By swinging the head to project on the floor, you can get enlargements up to 35X with a 2-inch lens. In addition to the integrating sphere lighthouse with its Circline fluorescent lamp, the Flurolite has many other features, including: two-hand control for simultaneous elevation and focusing, rotating glassless negative carrier for centering pictures on the easel, and extra-rugged construction for maximum rigidity. Accessories adapt it to use as a view or specialized copying or close-up camera. Price, \$99.50 without lens.

Kodak Hobbyist Enlarger has same modern illuminating system as the Flurolite. Knocks down with removal of 4 wing nuts to only 36 x 13 x 7 inches, making it ideal for the kitchen darkroom.

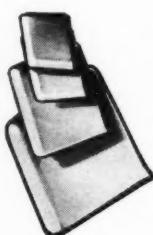
Positive, smooth controls lock in place. Inclined column keeps negative centered on baseboard. Provides 1.4 to 7 times enlargement on the baseboard. Has Kodak Enlarging Ektanon Lens, f/6.3, 89mm., and one rotating glassless negative carrier. Takes negatives to 2½ x 3¼. Price, \$57.50.

Kodak Masking Easel gives you sharp, clean borders from ¼ to ¾ inches wide. The specially designed back guide and stand arm make paper insertion easy. Masking arms are quickly and easily adjustable, accurately marked. Has felt base to prevent slippage. Takes paper up to 11 x 14 inches. \$9.60.

NOW is darkroom planning time. Now is the time to do that construction—while it's fun, and before you're all tied up with autumn shooting.

Here are some planning tips. First of all, the space needn't be large. The back of a closet will do . . . or a kitchen shelf. If you want to build a good permanent set-up, you can start with a space as small as 5x7 feet. Lightweight construction material will do, as long as it's light-tight . . . and you provide ample shelf and storage space.

From the equipment standpoint you'll want enough to let you do your best work. You will want to provide, too, for the gradual addition of items as your budget allows. Check over the list at the left. Check off those you do not have, or which need replacement. Then take your list to your Kodak dealer. He will help you in your choice and can give you valuable darkroom planning advice.



Kodak Enamelled Trays come in all popular sizes to take paper from 4 x 6 up to 23 x 28 inches. Chances are, though, that either the 8 x 10, 11 x 14, or 16 x 20 size will cover your needs.

Prices: 8 x 10, \$1.85; 11 x 14, \$3.00; 16 x 20, \$6.50. You'll need three.

Kodak Tank and Tray Thermometer provides the accurate measurement of temperature so essential to almost all processing operations in the darkroom. Made of stainless steel, with large, easy-to-read numerals. A handy clip holds it at the top of tank or tray. Price, \$1.99.



has both minute and split-second hands. Tilting base. Price, \$7.95.



Kodak Safelights The size of your darkroom determines the number of safelights you will need. It's pleasant to have two—one over the sink, and an indirect ceiling safelight for general illumination.

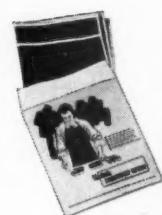
The **Kodak 2-Way Safelamp** can be mounted on wall, bench, or overhead in any screw-base socket. Can be rotated in socket for light direction. Comes complete with bulb and one filter. Metal plate on opposite side can be removed for insertion of second filter. Price, \$4.50. **Kodak Utility Safelight Lamp, Model C**, is your best choice for a big ceiling light that provides adequate indirect light, properly filtered for general illumination without harsh, disturbing shadows. Hanging chains are adjustable to ceiling height. Comes complete with chains, cord and switch, and one 10 x 12 safelight filter. Price, \$12.60. Bracket for wall mounting when desired, \$2.50.

You will probably also want...



Kodak Chemical Scales provide the accuracy you need if you plan to compound any of your own solutions. Avordupois and metric scales. Plastic protective housing. Price, \$14.50.

Kodak Automatic Tray Siphon, attached to tray, automatically siphons hypo-loaded water from bottom, supplies circulating fresh water at top for thorough print washing. Price, \$4.50.



Kodak Darkroom Apron, a real clothes-saver for the darkroom. Made of strong, waterproof vinyl plastic. Has a handy breast pocket. Drip-cuff prevents dripping on shoes. Price, \$2.25 (medium) and \$3.00 (large).

Kodak Projection Print Scale has steps of graded density so you can make a single test print through it, read the proper exposure time from the best segment. Price, \$1.15.



Kodacraft Roll-Film Tank loads easily. Includes three aprons for use with 620-120, 616-116, and 127 film.

Kodacraft Miniature Roll-Film Tank has two aprons for 828 or 20- or 36-exposure 35mm. film. Each, \$2.53.

Kodacraft Metal Printer, for contact prints from negatives up to 4 x 6 inches. Comes complete with 3 ruby acetate masks with apertures for 9 negative sizes, and 60-watt frosted lamp. \$7.95.

Kodak Photo Blotter Roll, for rapid, warp-free drying of all your non-glossy prints. Holds up to 120 2½ x 3¼ prints or equivalent. \$2.88.

How to choose

enlarging papers

BEAUTIFUL prints are yours for the making. Just choose the right paper, and handle it the right way.

From a wealth of superb enlarging papers, you can choose paper types that cleverly enhance the mood of any subject... papers of snowy whiteness, pale cream tint, luscious deep-toned old ivory... tempting textures of glistening smooth lustre, velvety mattes and sueded, lightly pebbled "fine-grained" papers, rough-textured tweed and tapestry types, and sparkling silk finishes.

You can choose image tones from warm black to rich brown-black and powerful neutral black or blue-black. And, to meet your operating preferences, you can choose from a broad array of paper speeds and contrast grades.

When you enter your darkroom, you're both craftsman and artist. And skillful choice, from the many fine Kodak enlarging papers, will give your prints the final supreme touch of artistry.

Pick a basic paper

The secret of print quality is this: choose a first-class wide-range paper, such as Kodak Medalist Paper, and *master* it. Start with one popular surface—for example, cream-white, fine-grained-lustre Medalist G—in several contrast grades. Select one or more good negatives, and carefully make a number of test prints. Time the exposures accurately, and develop for the right *time* in the right *developer* at the right *temperature*. The quality is built into the paper—and good technique brings it out.

Make each print with due care—and you quickly learn how to get top quality from your chosen paper. From there, it's easy to branch out into other surfaces—glossy, high-lustre, silk—to suit the mood of a specific subject.

Pick for personal needs

For **utmost salon quality**, pick Kodak Opal Paper. The beautiful luminosity of the Opal image, the delicacy of its tones, have made Opal the favorite of all exhibition pa-

pers for the expert. Moderate speed; one contrast grade only; many choices of sheen, tint, and texture. Two related papers: Kodak Ektalure Paper G, with Opal-type quality but twice the speed, and Kodak Illustrators' Special, a lustrous fine-grained surface for fine reproduction prints.

For richness, plus speed, plus flexibility of manipulation and contrast control—pick warm-black Kodak Medalist Paper.

For high production, when you want a number of big prints in a short time, pick rugged, top-speed Kodabromide Paper.

For learning, pick Medalist or Kodabromide. Both of these easy-to-handle papers come in a range of contrast grades, to fit both short-scale and long-scale negatives.

For quick processing, pick Kodak Resisto Rapid N. It's as fast as Kodabromide, and the special water-resistant base permits washing and drying in ten minutes.

Use this guide to surfaces and types

These are the important paper textures and the Kodak paper types in which you find them. Choose to fit your subject in each case.

Glossy. Kodabromide F, Medalist F.

Smooth lustre. Kodabromide N, Opal B, Resisto Rapid N.

Smooth high lustre. Medalist J.

Smooth matte. Opal C.

Fine-grained lustre. This delicately pebbled, moderate-sheen paper is the most popular of all surfaces for exhibition prints and general enlarging. The fine-grained surface subdues negative grain with no serious loss of detail. Kodak Ektalure G; Illustrators' Special E; Kodabromide E, G; Medalist E, G; Opal G, P (old ivory).

Fine-grained high lustre. Opal K.

Fine-grained matte. Opal H.

Rough lustre. Opal L.

Tweed lustre. Mural R; Opal R, S.

Suede matte. Opal V, W.

Silk lustre. Medalist Y, Opal Y.

Tapestry lustre. Opal Z.

The popular paper sizes are: 5 x 7 and 8 x 10 inches, for album prints, enlargement books, and small framed prints for home or gifts; 11 x 14, 14 x 17, and 16 x 20 inches, for exhibition and over-mantel framing. For one-piece murals, 40 inches by any length you desire.

For full details on these and other fine Kodak papers, see the *Data Book on Kodak Papers*, and your Kodak dealer.

EASTMAN KODAK COMPANY, Rochester 4, N.Y.



For finest detail, choose a glossy or smooth lustre paper. Pure white is best for news and "reproduction" prints; cream white is most popular for prints to be viewed directly.



For most enlarging from small negatives, a "fine-grained" surface is preferred—in matte, lustre, or high lustre. Use white for some marine and snow scenes; cream white for most subjects; old ivory for extra warmth, in candlelight scenes, character studies, and the like.



For broad pictorial effects, subdued detail, and to give a feeling of "liveness" to areas that might otherwise seem blank, choose a rough lustre, tweed, or tapestry paper. Cream and ivory tints are preferred here. Most papers can also be image-toned for more warmth or coolness.

Prices are subject to change without notice.

Kodak

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The newest Bolex thrill is here . . . movies that come alive with 3-D! Make your own . . . here is the kind of film magic that has coast-to-coast audiences spellbound in the large theatres.

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*including F. E. T.

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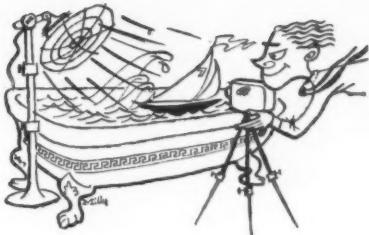


From yesterday's rollicking good times in 2-D movies, to today's flashing action in 3-D; you'll cover the whole range with the Versatile Bolex H-16



Dr. Cinema says...

"Special effects" may be a magic answer to scene footage you need.



Special effects—Hollywood's term for movie magic which goes beyond the realm of ordinary camera tricks—are a highly developed specialty. While some of the techniques used by the experts are closely guarded secrets, you can duplicate many of the end results with your own amateur movie equipment.

Water, water everywhere

Supposing you have in mind a scene which calls for a ship being tossed about by waves. Obviously, you can build a miniature set in which a model ship is buffeted by waves stirred up by an electric fan, a pancake turner, or a paddle. But if you let it go at that, the finished scene is going to scream "bathtub fake!" To do a real job, weight your toy boat with fishing sinkers to slow down its dipping and rocking. Use subdued lighting instead of bald, glaring illumination, and have your main light come from a single direction as if it were the sun (or moon). Improve the photographic quality of the water itself by mixing in a small amount of powdered chalk. Don't ask me why this stuff tends to make the water look more natural—it just does. Finally, film your scene at 24 or 48 frames per second so as to "slow down" the motions of the waves and boat for a more natural and convincing visual effect.

Winter comfort

Your private "Special Effects Dept." can also come up with some corking good winter scenes. Want to simulate ice floating on the surface of your bathtub ocean? Make sheets of ice from paraffin which you can melt, pour, and cut to shape as desired. It will float on the surface and photograph surprisingly like real ice floes, especially in slow motion shot at 24 to 48 fps.

Some months ago I mentioned that artificial frost on windows could be made by dabbing the glass with a saturated solution of Epsom salts which dries with a frost-like, crystalline texture. Now, of course, you can buy pressurized cans of material which is sprayed on windows at Christmas time to simulate frost or snow. Icicles? Cut narrow strips of plain cellophane, dip them in a sodium silicate solution (com-

monly called water glass) and simply hang them up someplace to dry.

Need a swirling fog to add mystery to an exterior night shot? Place some dry ice in a pail of water and have an assistant stand outside the camera range where he can fan the vapors across the scene. For a more stable fog—the kind that blankets the scene London style—spray a light-bodied mineral oil onto the set with a spray gun. This may leave your characters coated with an oily film—but you want special effects. Don't you?

Talking animals

Ever chuckle over the comic films in which animals seem to talk? You can manage a few such scenes, using either dubbed-in voice or printed titles according to the equipment you have. Since dogs are the most available subjects, let's try making the family pooch talk.

Different canines react in various ways, but here's a starter. With the camera set up and the dog in position, try giving him a gumdrop or a caramel. He'll probably make a production of chewing on it, moving his jaws, licking his lips, and so on. The morsel won't show, but if it's chewy it will keep him busy long enough for you to get some footage at 8 frames per second. When projected at 16 fps, his jaws will move rapidly enough to simulate speech. As you shoot, attract the dog's attention now and then so he appears to glance at the camera conversationally.

If you shoot several feet of this business, you can cut and splice it into a conversational

sequence between the main character and an equally vociferous pal. When you get tired of talking dogs, try the same stunt with a horse or donkey, using apples or carrots as "topics of conversation."

Editing is very important in films involving special effects, especially where miniature sets are employed. Even the best of fakery is increasingly likely to be detected by an audience the longer it appears on the screen. If you keep the

special-effects scenes brief, the audience has less chance to analyze them for fakery. Moreover, the tempo of your film will be improved.

How to wreck a train

In your approach to special effects you can be as elaborate as you wish, particularly where miniature sets are concerned. Train wrecks involving trestles and such can be simulated vividly with the faithful scale models now available. Film train wrecks in semi-slow motion (24 or 48 frames per second) for best results. For a cloud of dust when a miniature train rolls down an embankment, a toy racing car overturns, or an airplane crashes, plant a little dark face powder here and there on the models as well as on the miniature set. Fuller's earth is also effective for this purpose—and doesn't smell up the place like a dressing table. Whatever you use, be sure that dust doesn't settle on your lens.

How do you derail a train? By stretching a length of black thread or very thin black wire diagonally across the track. With a little practice you can learn to pinpoint the wreck quite accurately.

Need a puff of smoke as an artillery shell blasts out a crater? Shoot two or three frames of a tiny fluff of cotton at the point where the shell lands. Remove a bit of dirt at this point, add a little more cotton to the original puff, and shoot a few more frames. Continue this way until the crater is as deep as re-

MOVIE SECTION ▶

quired and the cotton "smoke" has started to "drift" away.

Want still more special effects ideas? Then write the Movie Editor, MODERN PHOTOGRAPHY, 251 Fourth Avenue, New York 10, N. Y., for a free booklet, "Tips on Movie Making Tricks."

Also remember that I'll answer your movie-making problems when and if I can. Just drop me a line at the above address, enclosing a self-addressed, stamped envelope for your reply. THE END



try underwater movies

BY PETER GOWLAND

Fish, seals, and some species of models seem to thrive in chilly water. I don't. That's why I like the home-made "periscope" shown across the page better than the other rigs I have used in shooting underwater pictures. If the water is cold, I can stay in a boat or on the edge of a pool, push the window of the periscope a few inches below the surface of the water, and photograph the underwater antics of my subjects in comfort.

Most underwater camera cases are slow to operate because they are water-tight and have to be dried off and opened before the camera can be reloaded. Moreover, water-tight cases are generally custom built to fit only one type of camera and can't be used with a different camera. This can be both costly and inconvenient.

Not so with the "periscope". Since it is completely

open at the top, you can reload a camera—or switch cameras entirely—in a matter of seconds. I use a 16mm movie camera, a Rolleiflex, and a 35mm Nikon with this outfit. By shortening the distance between the lens and the mirror, I could also use my 4 x 5 Speed Graphic.

After experimenting with several different sizes of periscope boxes, I finally settled for a box 24 inches deep having a window on the side near the bottom. When a movie camera having a "normal" lens, or a still camera having a long focal length lens, is mounted in a vertical position at the top of the box, it records images reflected in a mirror set at a 45° angle in front of the window opening.

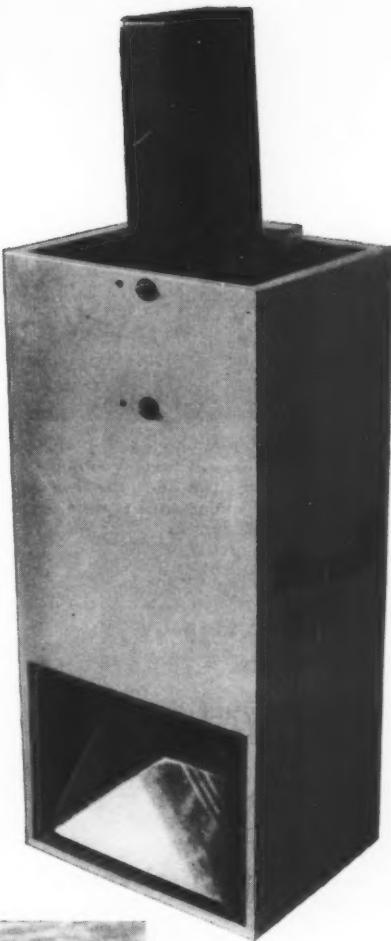
For use with a reflex camera, the mirror is removed so the camera can be placed on the bottom of the box

where composing is done on the ground glass in the usual way. In actual use, I find it easy to hold the periscope where I want it with my right hand, leaving my left hand free to operate the camera. If you find the box too buoyant, add some lead or iron weights to its underside. If you have difficulty distinguishing images clearly in a reflex camera viewfinder, it will help to focus with a black cloth over your head. While I have no difficulty in hand-tripping the shutter of a camera placed on the bottom of the box, you may want to use either a long cable release, or rig up a release that can be tripped from a position alongside the handle of the periscope box.

Although in actual use the box window is only a few inches beneath the surface of the water, the effect is that of being much deeper. I find that on a sunny day in a well lighted pool, the correct underwater exposure is only about one stop slower than it would be on the surface. You can check the light with a photo electric exposure meter by placing the meter on the bottom of the box so that the cell faces the window. With or without a meter, however, you should conduct a series of exposure tests before you begin actual shooting on a large scale. These will save you time and film.

The glass window on my (*Continued on page 110*)

**This "periscope" cost \$6 to make, can also
be used with still cameras. See next page.**

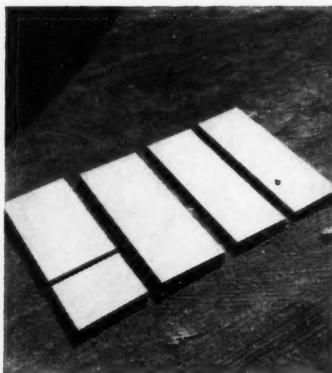


Although the window of the periscope, above, goes only a few inches under water, the effect is that of being deeper.

Movies shot near the surface in a sunny pool require only about one stop extra exposure. The pictures are soft and the images are reversed side-wise because of mirror.



1. A piece of plywood (5-ply), size 24 x 36 inches, will furnish enough material for the two sides, the front, and back of underwater periscope.



2. Cut the plywood into five pieces as follows: *Front*, 9½ x 16¼ inches. *Bottom*, 7½ x 9½ inches. *Back*, 9½ x 24 inches. *The sides*, 8 x 24 inches.



3. After the parts have been cut to size, sand the edges to remove all the burrs. Spread putty or sealing compound on the edges to be joined.

Here are step by
step instructions on
how to build an
underwater periscope.



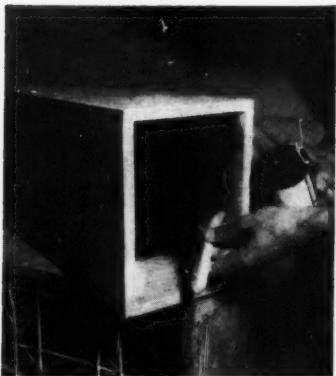
6. Camera lens is centered about 22 inches above bottom of case. Clear glass was used to ascertain size of the mirror and window to be used.



7. With mirror and side panel in place, a ¼-inch notch is cut around window opening with a wood chisel. This is where glass will be inset.



9. Smooth a strip of putty around glass with putty knife, using the same procedure you would use in installing a glass pane in your home.



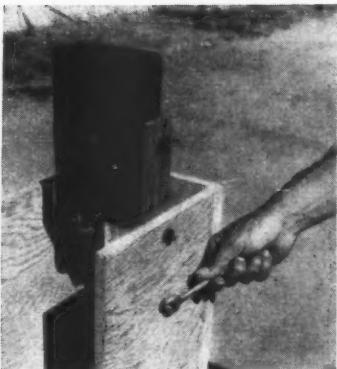
10. To eliminate reflections, give the inside of the box one or two coats of flat black paint. I used Eastman Kodak Brushing Lacquer for this.



11. Cover the window to protect it, and brush or spray outside of box with two or three coats of enamel or lacquer. The color doesn't matter.



4. Every three or four inches along a joint, sink a $1\frac{1}{4}$ inch flat head screw in place. Be sure the joints are well sealed with compound.



5. Two $\frac{1}{4}$ -inch bolts, $1\frac{1}{4}$ inches long, attach board holding camera to top of periscope. A wing bolt with $\frac{1}{4}$ inch standard thread secures camera.



8. For watertight seal, glass window is pressed down upon thin layer of caulking compound. Use small glazier's points to hold glass in place.

Gowland makes underwater still pictures with Nikon or Rolleiflex as explained in the text.



12. Thus far, my periscope box has never leaked a drop. Right hand is used to operate camera; left hand holds the periscope down by handle.



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cine-kinks

Night movies in color of brightly lighted streets or a carnival midway require no special equipment. You can use either daylight or tungsten type color film—tungsten if you want the colors to appear "normal"; daylight if you want them to appear "warmer" than they actually are. Use a tripod or steady support if you can. No filters (except for special effects). An aperture of f/2.8 is about right for brightly lighted scenes; f/1.4 will record medium colored signs and the areas that are less brightly lighted.

Want to tint black and white titles? Try dissolving a 10c package of Tintex (fabric dye) in cold water. Soak the title in clear water five minutes, then place it in the dye solution ten to fifteen minutes (depending upon the amount of color you want). Finally, rinse the title in clean water, wipe off excess moisture with a damp pad of cotton, and hang up to dry.

Two new monthly publications, both deserving of attention, are available to movie-makers upon request.

Eastman Kodak Co., Rochester 4, New York, has begun publication of a six page pamphlet called *Kodak Movie News* which is slanted "for both 8mm and 16mm movie makers." It's loaded with interesting, concise, down-to-earth information.

Equally informative is *Pioneer Tracks*, an eight page pamphlet being produced by Bell & Howell Company, 7100 McCormick Road, Chicago 45, Ill. This pamphlet is produced "in the interest of users and prospective users of sound-on-film." Briefly, it's a must for the decibels and impedance boys.

Questions from readers:

Q. I have a Bolex-H camera and I am told that a guide book for this camera, which includes data on stereo, was recently published. Do you know of any such book?

A. Yes, the book is called the *Bolex Movie Guide*. The author is Kenneth Tydings, S.P.E., the price is \$1.95, and MODERN's book department can be coaxed into selling you a copy.

Q. I want to organize a cine club in my neighborhood. Can you send me literature on how to go about it?

A. We have no printed matter available on this subject, but we are sending you the addresses of two organizations that can help you get a neighborhood cine club started.

Q. Can I have 35mm transparencies made from single 8mm or 16mm frames?

A. The only lab we know of performing this service is U. S. Photographic Equipment Corp., 442 Rogers Ave., Brooklyn 25, N. Y. Query them first.

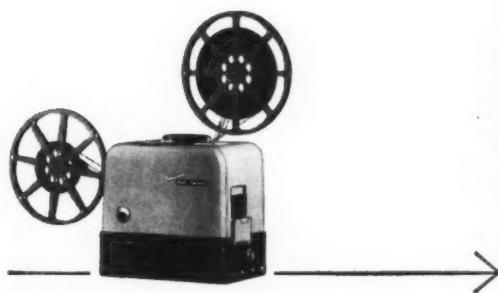


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the Camera Clubs

by MABEL SCACHERI

What ails camera club meetings? They can run smoothly if you know how to handle the most annoying problems

Do camera club meetings have to be quite as corny and amateurish as they too often are? Probably I am meaner and sassier on this subject than most people, since I get a bigger dose, annually, of camera club meetings than most people do.

At any rate, I feel like having a tantrum about what ails camera club meetings. No alibis from you either. I know, I know! These affairs don't have to run along as smoothly as paid entertainment. In fact, they ought to be casual and informal. But do they have to be full of blunders?

It is the small details which mess things up—the small details which anybody could notice and prevent. Why, for instance, can't the meetings start on time? Is it because the speaker couldn't get away from his place of business earlier, or service was slow at dinner? That's not often the reason. Call for him at six, take him to the restaurant, put your watch on the table and eye it from time to time, then deliver him at the club rooms at 8:30, if that's the starting time. Or, if you are really afflicted with slow-pokes, have your meeting time 9 P.M. But at that hour, START.

Air and light

Then there's ventilation. The room gets so hot and full of smoke that people are gasping or dozing off. Why not schedule a five-minute intermission, open a window, air out, then go on. The chronic "oh what an awful draft"

contingent could go out in the hall during the airing process. These breaks in the evening's doings are kind of a good idea, anyway. The chairs most clubs use are plenty hard and it's good to stand up and stretch.

During a lighting demonstration, make sure the back lights don't shine right into the eyes of the audience. The demonstrator might angle his show first toward one side of the room, then the other, repeating his point. Or, you might supply some tracing cloth screens, or spun glass diffusers to place in front of the lights. It can be explained that the demonstrator doesn't use his lights that way—that the screens are to shield the eyes of the audience. You can still see what the lights are supposed to be doing.

Help the speaker

If the man demonstrating or showing pictures stands in front of the audience and cuts off their view, a smart program chairman can easily handle the situation. All he has to ask is, "Can everybody see?" The demonstrator will catch on quickly. Remember these speakers are usually not trained in speaking or showmanship. They are photographers who have given up time to tell you something useful. Make sure the speaker's voice can be heard, by stationing a club member in the back of the room—one who will speak up if he hears only a low-toned murmur. The same member can also politely shush people in the back who whisper or talk in undertones throughout the camera club meeting.

Now as to prints shown in the light box—a simple run-through rehearsal at the beginning of the season would



help the two members who are going to do the job this year. They would learn how to place prints in the box so they won't get banged up or flop over. White gloves might make the job more comfortable and the mounts of the pix would remain cleaner.

On color-slide night, who lines up the slides in a row, ready for projection? Does he know that many slide-makers put the dot in the wrong place, or is he an optimist? How many minutes would it take him to glance at each slide as he lines it up, and make sure it is right side up, dot or no dot? Maybe ten or fifteen minutes.

Other angles

What baffles me about these camera club blunders is this: the members are intelligent; most of them do well on their jobs, run their business efficiently; but something comes over them when they have charge of club meetings. Sometimes the problem is just a speaker or demonstrator who needs a bit of help. Then why can't a club officer see to it that some young fellow is available to help him adjust lights, reload his camera, or give him a drink of water. You'd do these little services for a guest in your home—not let him sit and wait on himself, wouldn't you?

Camera club officers shouldn't take the attitude that "it's just a camera club"—members all know each other—things can go rather ga-ga and no harm is done. There is harm done. Members drop out, bored. And visitors have a thin time—see no reason for joining the club.

Incidentally, most clubs encourage visitors, as a source of new members. Are they welcomed at the door, introduced around, and invited to the coffee session which usually follows the meeting? Why not have a half-dozen greeters—maybe with ribbons or badges—to take care of these little courtesies?

Every camera club meeting is a sort of show, with an audience looking at something going on. It should go on smoothly, intelligently, with all foreseeable details taken care of. Get those extension cords, those extra bulbs, on the premises ahead of time. Think out what you're going to say and keep it short. Figure on two to two and a half hours as being all people want to take, of anything. Put some zip and interest into the doings.

I notice that the clubs which do manage well, whose meetings run as though the human brain were on the job, are not the ones who come to me wailing, "Mabel, give us some publicity please. We sure need some new members."—THE END.

Camera Club Presidents: Please send us the name and address of your club so it can be listed in the Camera Club section of the Directory of the Photographic Industry. If you are listed you will receive material sent out periodically by certain photographic firms. Write: The Camera Clubs Editor, MODERN PHOTOGRAPHY, 251 Fourth Ave., New York 10, New York.

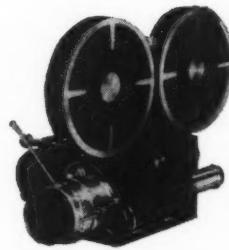


BEFORE AND AFTER. Want a club room? Try the method used by Mississinewa Camera Club of Marion, Ind. Cash outlay was small as members contributed labor. And the landlord gave six months free rent in return for repairs made. Let's see shots of your club's activities. We will pay \$10 for each photograph we can use.

PHOTOS BY FRANK SMISER

If your camera is here... you too can ZOOM from 20mm to 60mm with this variable focal length lens

Pan Cinor®



Maurer Camera drops its own finder. Its regular "C" mount turret accepts Pan Cinor without further modification.

In line with its policy, "Bolex brings the best to 16mm Movie Making," the Pan Cinor variable focus lens was introduced to Bolex movie makers a year ago. Because of the demand from both professional and amateur owners of other cameras, we explored the possibilities of fitting the Pan Cinor on cameras other than the Bolex. Here are the answers. Now you, too, can enjoy zooming from wide angle to telephoto at the flick of the lever. Maximum aperture f/2.8. Complete with coupled variable view finder,

\$447.50



Mitchell Camera. Remove Pan Cinor finder. Use "C" mount adapter. Turret knob diameter is turned down.



Auricon Cine Voice Camera. Suggest special door without its viewfinder. Purchased from Berndt-Bach for \$42.



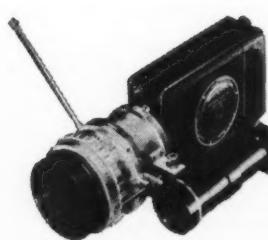
Bell & Howell 70. Suggest special door without its viewfinder. Installed by B&H Service Center for \$35.



Keystone 16mm Magazine or roll cameras in general need no special adaptation for Pan Cinor and finder.



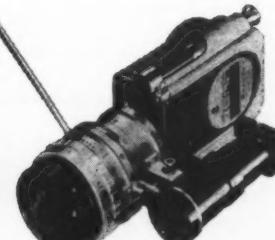
Cine Special I&II both use model I turret drilled & tapped for C mount by Kodak Service, 343 State St. Rochester.



Bell & Howell Auto load, Auto Master and Model 200 mount the Pan Cinor and finder with ease.



Morton Soundmaster drops its finder, and shortens the Pan Cinor lever to clear the film magazine.



Revere Magazine Camera model 16 and model 26 mount the Pan Cinor lens and finder with ease.

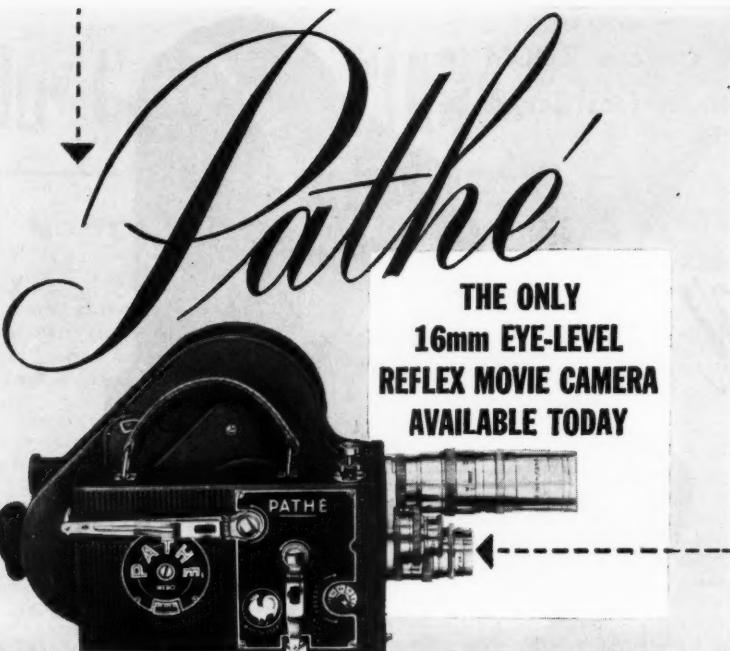


Pathé Super 16. Instead of the Pan Cinor Viewfinder, its own reflex finder may be used for viewing.

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**THE ONLY
16mm EYE-LEVEL
REFLEX MOVIE CAMERA
AVAILABLE TODAY**

What the motion picture world has adopted as an absolute must; what still manufacturers have recognized as an important advantage; is now available in a motion picture camera designed expressly for 16mm professionals and serious amateurs.

You see the subject exactly as it is being photographed. You see it through the very lens in use. Parallax is entirely eliminated. You compose more easily; you frame accurately; and you focus sharply, even during the actual shooting of the scene. This cannot be done with any other existing 16mm movie camera on the market today.

EYE-LEVEL REFLEX FOCUS

A feature formerly restricted only to the professional cinematographers now available in the Pathé "16". You sight directly through the lens in use while it is in use. You can follow focus—you see when the subject moves out of the depth of field—you can achieve perfect composition—from titles to landscapes you know the exact limits of your field. Now no more out-of-focus pictures...no more chopped heads...no necessity for parallax correction—there is no parallax. All the advantages heretofore enjoyed by Hollywood's top cameramen are now made available to you by Pathé engineering.



Priced at \$450.00 less lens. No excise tax. See Pathé's Model E at your favorite camera store, or write for free folder. Dept. M-10. DIRECTOR PRODUCTS CORP., 570 Fifth Ave., New York 36, N. Y.

PLEASE SAY YOU SAW IT IN MODERN

new photo books

THE SCIENCE OF COLOR by the Committee on Colorimetry of the Optical Society of America. 385 pages including 22 pp. of reference, 23 pp. of Glossary-Index, 25 color plates, 102 black and white drawings, 40 tables. Thomas Y. Crowell Co., N. Y. Price \$7.*

This book is in reality a comprehensive report of a committee appointed in 1933 to revise a 1922 report by a Committee on Colorimetry of the Optical Society of America. Dr. L. A. Jones of Eastman Kodak Company was chairman of the committee when appointed in 1933 and at the completion of the task. During the years some names disappeared from the committee list and others were added. At the time of publication twenty-two names appeared with that of Dr. Jones on the roster of the committee.

The book may properly be classed as a compilation since different chapters are the work of specific members of the committee. Because of this the book presents the leading contemporary views concerning the theory of color. With the exception of the first chapter, which is chiefly an historical account of man's use of color from prehistoric times, the report will be rather heavy going for the average reader or the non-scientist. This in no way detracts from the magnificent character of the work and the fascination it holds in store for the student who is desirous of an insight into the basic concepts of color as a phase of light and the psycho-physiological aspects thereof. The chapter dealing with the anatomy and physiology of color vision is very well prepared and readable. Those seeking an insight into methods employed in the measurement and rating of color will find the chapter on Colorimeters and Color Standards to be decidedly helpful. It is a reference book of greatest value to the theoretical scientist and to reference libraries.—DR. LOUIS WALTON SIPLEY.

Dr. Sipley is Curator of the American Museum of Photography in Philadelphia, and author of the book A Half Century of Color.

COLOR MOVIES FOR THE BEGINNER, by Harris B. Tuttle, 144 pages, illustrated. Crown Publishers, N. Y. Price \$1.*

This is a revised edition of the book which first appeared in 1941 in the *Little Technical Library*. In addition to bringing the subject matter of the book up to date, the revisional work has improved the book's attractiveness and readability. In the chapter on *Principles and Equipment* the mechanical operations of movie cameras and projectors are explained with exceptional clarity. This chapter also discusses the advan-

(Continued on page 96)





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NEW PHOTO BOOKS

(Continued from page 94)

tages of 8mm and 16mm film sizes, and the various lenses commonly used by amateur movie-makers. The remaining chapters deal specifically with: Color Movie Processes; Color Film Characteristics and Color Temperature; Exposure; Artificial Lighting; Tricks of the Trade; Tilting and Editing; Special Fields; Projectors and General Information.—A. A.

The following three books are reviewed by Norman Rothschild.

EINFÜHRUNG IN DIE PHOTOTECHNIK, Introduction To Photographic Technique, Vol. 1., by Dr. Theobald Weyres and Dr. Edgar Paulsen, 160 pages, 159 illustrations, in German. Published by Technischer Verlag—Herbert Cram, Berlin W-35, Germany. Price 15 German Marks (approximately \$3.75).

Translated into English, this well-illustrated volume would make an excellent text book. It covers the principles of photography thoroughly, yet is not long-winded or boring.

There are chapters on light theory, optical laws, lenses, objectives, lens characteristics, lens manufacture, lens coating, optical accessories, shutters and lens mounts, sensitive materials, films and plates for special purposes, a short history, chemical processes, and a listing of most of the available lenses of German manufacture, with structural diagrams.

The text is in easy to understand German. Its illustrations will be of limited usefulness to those who cannot read the language.

ELECTRICAL FACTS FOR PHOTOGRAPHERS, photofacts number 29, by R. H. Adler. 44 pages, 8 diagrams, 12 illustrations. The Fountain Press, London. Imported by Rayelle Foreign Trade Service, Philadelphia. Price 60 cents.*

If this book had been written with the American photographer in mind, it could have helped him to service his lighting and other electrical equipment. Unfortunately the text discusses only British voltages, lamps, sockets, and wiring. However it is written in a clear concise style, has excellent illustrations, and a good chapter on electrical theory.

POCKET LEICA BOOK, by Theo Kisselbach, 192 pages, 146 illustrations, 10 tables, 15 diagrams. Published by Hering-Verlag, Germany. Distributed by Rayelle Pub., Phila. Price \$2.95.*

Many manuals written about individual cameras have appeared on the market recently. This is one of the best. That part of the book concerning the elementary operation of the Leica—loading, shutter speed settings, diaphragm openings, film rewinding, and exposure, will save the beginner many times the cost of the book in film.

Flash, electronic flash, color, close-ups, telephotography, choice of lenses,

(Continued on page 98)



SHOOT IT WIDE AND DEEP

WITH A SUMMARON 35mm f/3.5 ON YOUR LEICA

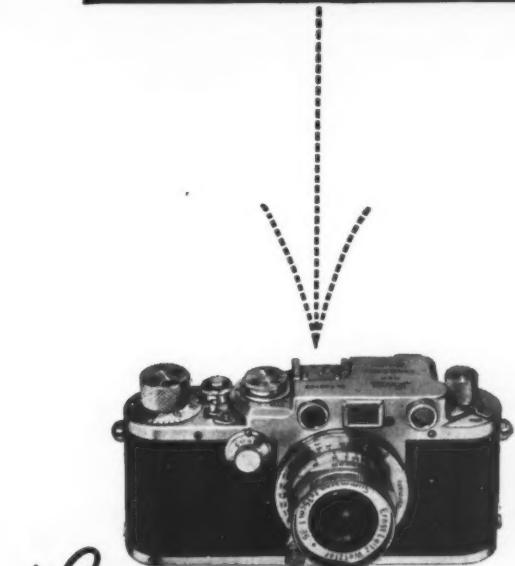
Your eye takes in a span of approximately 68°, and the Summaron 35mm wide-angle lens captures all that your eye sees. So great is its depth of field that you hardly need use your range finder! Set the Summaron at f/11 for a distance of 26 feet—everything from 5½ feet to infinity will be in sharp focus.

Even at full aperture the Summaron has excellent contrast and correction. Its unique optical design eliminates vignetting and other lens aberrations. Like all Leica lenses, the Summaron is factory-coated for minimum reflection haze and lens flare.

This short focus lens is ideal for architecture and landscape work. It will produce distortion-free photographs in crowded interiors or wherever "shooting space" is limited.

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NEW PHOTO BOOKS

(Continued from page 96)

fine grain developing, filters, enlarging, making of black-and-white transparencies, depth of field, choice of film and other subjects are also covered in a clear, concise manner. The charts, diagrams and photographic illustrations are excellent.

Where references are made to products other than Leitz, those on the American as well as on the European market are mentioned. Thus for example, in the flash chart, G. E. and Sylvania lamps are included with the foreign makes. Film speeds are rated in ASA, flash charts are in feet.

THE CONTAX WAY, by H. Freytag, translation by Gerald R. Sharp, 272 pages, numerous illustrations. Focal Press, London. Price \$3.75.*

If you own a Contax camera, you should have this book. A reading from cover to cover will yield much information that the most fanatic Contax owner probably does not know.

The volume covers all mechanical aspects of the camera, accessories, exposure, handling different types of subject material plus instructions on developing and printing. Drawings are excellent but the photographs showing the Contax's versatility leave something to be desired in imagination and picture appeal.

The text, although suffering in spots from the usual problems of translation, is, on the whole, easy to understand. It has, however, two flaws. First, an effort has been made to internationalize the book by eliminating all mention of products which vary from country to country. Thus it's irritating to be told concerning the purchase of a suitable developer, only "buy a ready-made developer prepared by one of the reputable photographic manufacturers... follow the instructions on the packet". Films are likewise treated.

Secondly, the author is employed by the camera's manufacturer. There is no mention anywhere of commonly recognized technical problems such as the loss of definition of high speed lenses at wide apertures.—H. K.

THE AMERICAN ANNUAL OF PHOTOGRAPHY, 204 pages, fully illustrated. Published by American Photography Publishing Co. Price \$3.50.*

This large book, printed on excellent paper, will appeal to those who like photographic smörgasbord. The contents touch lightly upon everything from history to poetry, and from biological photography to a listing of Who's Who in pictorial photography throughout the world.

A book such as this is difficult to evaluate objectively. It has its good points, it has its bad. If the photos and articles fail to strike a responsive chord, this is the kind of book that once buried is soon forgotten.—A.A.

* Can be purchased from MODERN PHOTOGRAPHY Book Dept., 251 4th Ave., N.Y.C. See advertisement on page 125.

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You who love superb, high-fidelity tone quality...you who admire the sheer beauty of simple design...you who appreciate watch-like precision that gives uncompromising dependability of performance—open your eyes and ears to a new thrill!

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"I tried it myself"



△ **THIRD PRIZE \$10.** Here's a sensitive study by Richard Sadler of Coventry, England, made just as a cub scout spotted the bus which would take him home. Rolleicord at f/3.5 and 1/10.

SECOND PRIZE \$15. "On the Nose" ▷ is the title of this amusing action picture by Charles Johnson of Los Angeles, Cal. He clicked the shutter of his Rolleiflex camera at just the right moment. Exposure: f/8 and 1/100 sec.

MODERN
PHOTOGRAPHY'S
MONTHLY CONTEST

FIRST PRIZE \$25
SECOND PRIZE \$15
THIRD PRIZES \$10

WITH cold weather coming on, you'll probably be taking more and more pictures indoors—and that means slow exposures, unless you use flash. Do you know the slowest speed at which you can shoot handheld and still get sharp pictures? Why not run a test roll and see? If your hand is particularly steady, you may be able to shoot at 1/10 or 1/5 second. However, if 1/25 second is your limit, there are two things you can do when no tripod is handy: lean the camera against a door jamb or piece of furniture; rest the camera on a table or ledge. If the camera is really steady on the table, you may be able to get successful shots at speeds as slow as 1/2 or 1 second. Remember that you have little depth of field when shooting wide open, so focus carefully before exposing film indoors.

"I Tried It Myself" is a monthly black-and-white contest with few rules. Any reader may submit any number of pictures, 4 x 5 or larger, provided he puts his name, address, and all technical data on the back of each print. Return postage should be included if you want pictures we cannot use returned. All contributions are considered for use elsewhere in the magazine. Send them to: Columns Editor, MODERN PHOTOGRAPHY, 251 Fourth Avenue, New York 10. New York.





\$25 FIRST PRIZE goes to Minoru Uchida of Fukuoka, Japan who successfully captured the feeling of moving water in this picture. He used a medium yellow filter and exposed with a Minolta Reflex camera at f/8 and 1/250.

THIRD PRIZE \$10. If you like mood shots why not play around with light and shadow? Joyce R. Wilson of New York, N. Y. made this photograph in San Diego, California with a Leica IIIc camera. The exposure was f/5.6 and 1/100 on Plus-X.

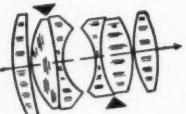


THIRD PRIZE \$10. Humor often comes from combining strange or contrasting subjects, as in this shot by Bill Jerig of Corona, N. Y. He was squatting in front of the hippo, about to shoot, when the bird walked into the scene. Rolleiflex camera, f/8 and 1/250 second.

ANOTHER REASON WHY
WOLLENSAK IS FIRST CHOICE

Only Wollensak Lenses are

FULLY TEMPERATURE PROTECTED



NEW THERMO-SETTING CEMENT...

- WITHSTANDS EXTREME TEMPERATURE AND HUMIDITY CHANGES
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- HOLDS LENS ELEMENTS FIRMLY TOGETHER

Now in all Wollensak Raptar lenses . . . wherever the optical elements are cemented together . . . the best of the thermo-setting optical cements are used.

The widespread enjoyment of photography and the increase in travel by camera fans convinced Wollensak that in order to maintain the high Raptar standards of lens performance *thermo-setting cement* must be used. Even photo fans who stay at home in temperate climates need its protection. Imagine your camera locked in a closed car parked in the broiling sun, or in the city in mid-summer. Here temperatures will go well over 100°. Under such heat old type thermo-plastic cements were very likely to become fluid, thus causing cement blisters, separation of the elements, or both. Thermo-setting cements are entirely stable throughout the temperature range, from -60°F to +160°F, and in all humidity conditions. A Wollensak first that assures highest quality lens performance.

Raptar... the MASTERPIECE of Lenses

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OPTICAL COMPANY, ROCHESTER 21, N.Y.

3D CAMERA, VIEWER BOTH FOR \$14.95

The first stereo box camera to be available for some time has appeared on the scene. The British-made Coronet 3-D Camera outfit, viewer included, sells for \$14.95 and represents an entirely different approach to stereo.



The Coronet Camera is simple and sturdy. It's shown here with a lens covered for making eight single shots.

The Coronet, a molded plastic camera with a single speed shutter and one lens opening, produces four pairs of stereo pictures on a single roll of 127 film. The black-and-white contact prints are seen in stereo with a cardboard viewer whose lenses magnify the 1 1/8 x 2 1/4 in. prints considerably. The shutter is cocked with a small lever at the front of the camera. There is no flash synchronization, no double exposure prevention, no provision for making time exposures. There are two finders, a waist and eye level—also provision for closing one lens for making eight single pictures.



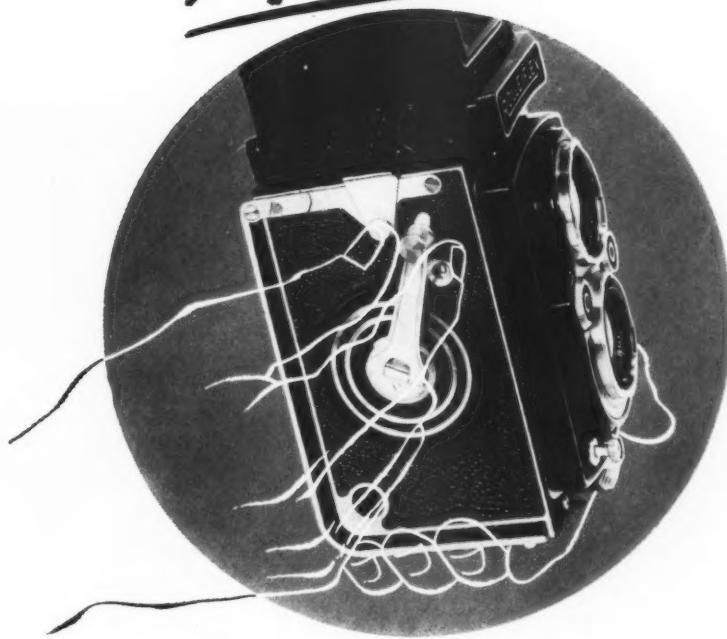
The viewer is flimsy. Contact prints are difficult to line up properly underneath the clear plastic band. Operation's slow.

While the outfit will certainly not produce results comparable with expensive stereo cameras and color film, it does fill a definite place in the stereo field.

The cardboard viewer which holds the lenses in place via staples leaves quite a bit to be desired. It is flimsy, and must be held just the right way for stereo vision. The plastic strip under which the pictures are slipped is a weak point. It is somewhat difficult to slip the pictures behind the plastic evenly.

Pictures taken with the Coronet were adequately sharp for the purpose of viewing them stereoscopically in contact size. —NORMAN ROTHSCHILD.

Automatic!



★ **SPEEDIER**

★ **SIMPLER**

★ **SURER**

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Then add to this outstanding advantage, the *simplicity* of Rollei's controls. While composing you can also set the lens and shutter . . . for all controls are operable, with the settings in plain view, from the normal camera operating position. No need ever to move or turn camera.

Experience for yourself just what these features mean in convenience, speedy operation, and in picture results. Your local dealer will gladly demonstrate, or write for literature.

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ANSCO 35MM COLOR RELOADS

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modern STEREO

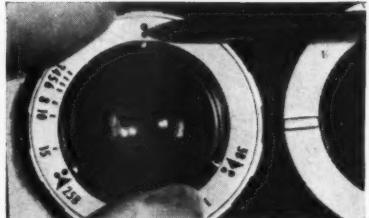
BY BART BROOKS



Stereo Realist Flash Guides make calculations unnecessary. They are simple to install, easy to use.

Ever get tired of figuring flash exposures via long division? Most of us do. Then there's always the chance that your subject-to-flash-distance-divided-into-the-guide-number arithmetic may go awry. Mistakes in flash are costly.

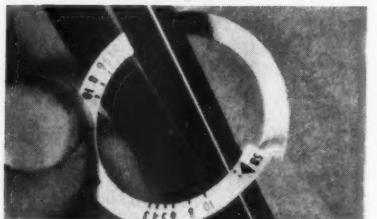
The David White Sales Corp. of 315 West Court St., Milwaukee 12, Wis., has solved the problem—for Stereo Realist owners anyway—by making Realist Flash Guides available free of charge. These small aluminum rings fit around the collars of your lenses and figure the proper flash exposure for you at any given distance with a given bulb at 1/25 sec. You can get them from your dealer or directly from David White. These two guides were designed to be used one at a time. But you can place one on each lens mount with a few simple alterations. First let's see how the guides are fastened to the camera and then work out a typical problem with them.



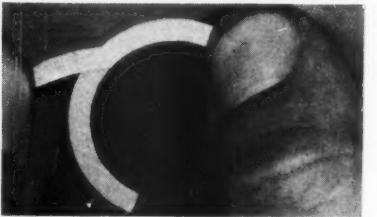
3. Place blue bulb ring atop left camera lens as it faces you on a flat surface lying on its back. Match colon (:) on nearly blank segment with white dot on mount used for setting apertures.



4. If your Realist is an old model with only one white dot on mount, score scratches on mount opposite two other colons on guide ring. Fill in scratches with white ink or paint. Use a brush.



5. Carefully cut away with scissors that portion of the ring with the single colon. Do not cut into figures on remaining two-thirds of rings. Use large scissors close to jaws. Aluminum's tough.



6. With your thumbnail or a fine blade, peel off the protective coating on ring's back exposing the adhesive layer underneath. Make sure you don't peel off both adhesive and protective backing.

(Continued on page 106)

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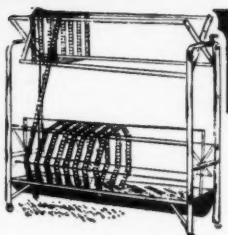
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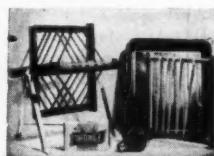
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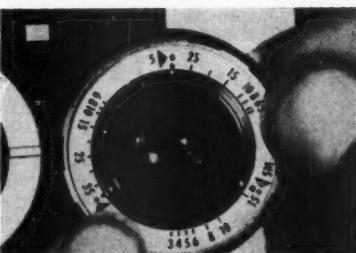
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MODERN STEREO

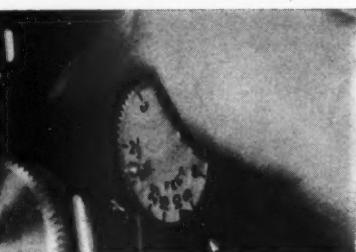
(Continued from page 104)



7. Press ring down atop lens mount with two remaining colons matching the two lower dots (or whitened scratches). The diaphragm setting must be at f/3.5 during this particular step.



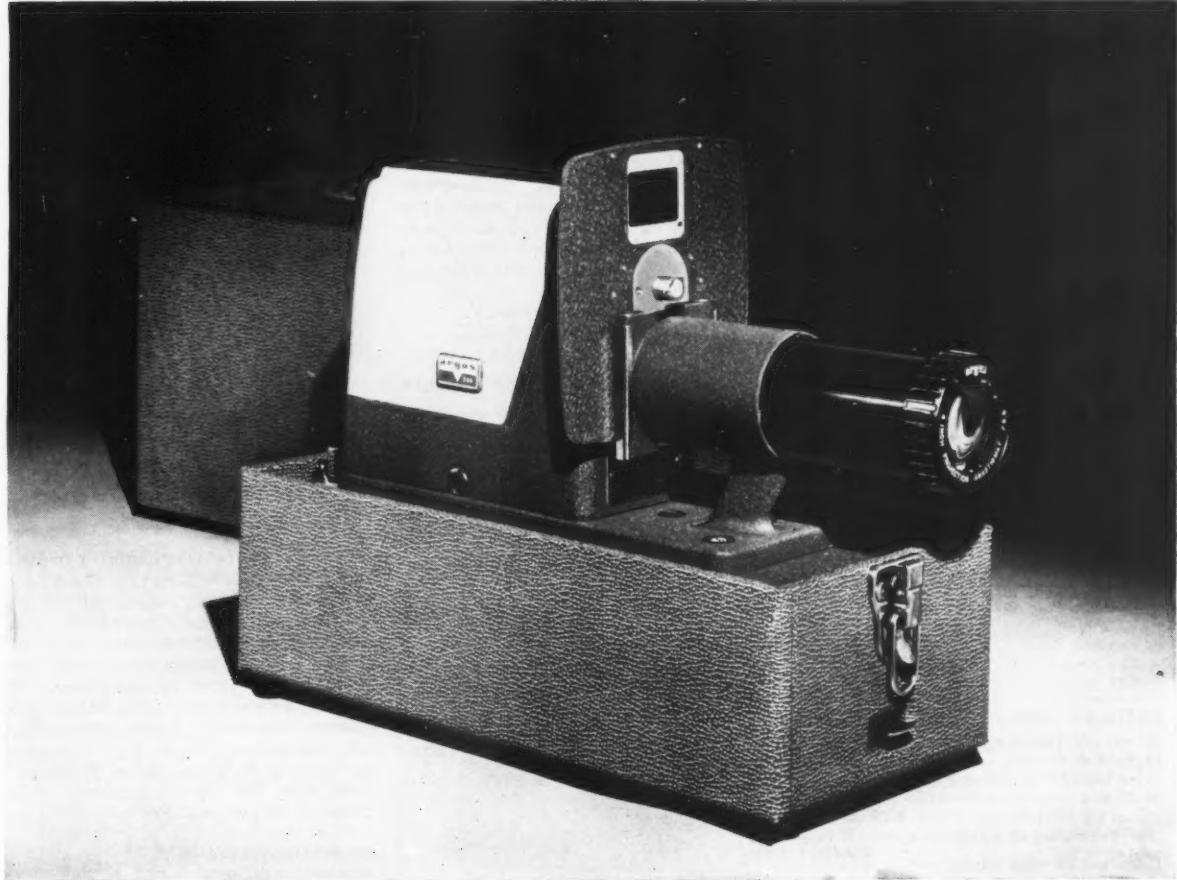
8. Now take the Type A guide, peel off its backing and press it over other lens mount with white dot matching any colon at f/3.5 opening. If camera does not have dots opposite all three colons, scratch and fill with white ink or paint.



9. Here's how guide works. First find your subject to flash distance using your rangefinder. Read off the footage from the focusing knob. In this particular case, it would be exactly 10 ft.



10. If you were using 5B bulbs, you'd rotate lens mount until footage opposite 5B arrow matched white dot. Aperture of f/5.6 would be correct at 1/25 sec. For 25B bulbs use other set of figures on ring, other white dot. Type A ring has settings for SM, 5, 25 bulbs.



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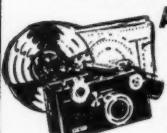
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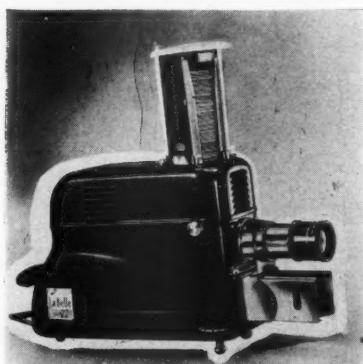
(Continued from page 42)

matic), \$6.95; Auto-Up close up attachment for Mamiya 6, \$18.95; Parallax-Up close up attachment for Mamiyaflex II, \$14.95; flashgun for Mamiyaflex Automatic, Mamiyaflex II, or Mamiya 6, \$19.95; connecting cord for flashgun (ASA, European, or Japanese fitting), \$3.50 each; lens hood with case, for Mamiyaflex II and Mamiya 6, \$4.50; lens hood for Mamiyaflex Automatic, \$4.95. For additional information write:

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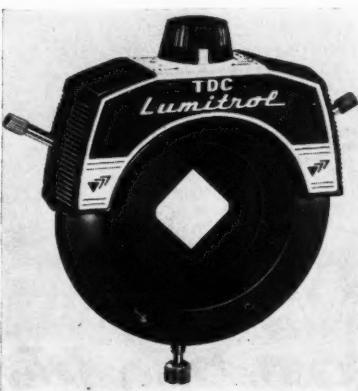
stacks them in original sequence in the Safety File magazine. Also featured are fast-acting shutters to prevent glare between slides. Both units have coated f/3.5 lenses.

The Model 22 is a 200-watt, convection cooled unit. The 55 uses a 500-watt lamp, and is blower cooled. It



TDC Diaphragm For Slide Projectors

The TDC Lumitrol is an adjustable diaphragm device for controlling the intensity of illumination from slide and film-strip projectors. The unit provides a means of reducing the light from overexposed slides, which normally lose detail under full projector illumination. Another use of the device



features a pre-heating chamber to protect slides from sudden heat shock. An accessory carrying case for either model holds projector, magazine, lens, and cord in compartments. It is of luggage type construction, with blue tweed finish. Prices less case, Model 22, \$69; 55, \$95; carrying case, \$13.85; accessory Somtar f/2.8 lens, \$32.50. Extra magazines: 6 in., for 75 ready-mounts or 35 glass slides, \$1.75 per pair; 9 in., for 125 ready-mounts or 65 glass, \$2.80 per pair. For additional information write:

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Baldinette 35mm Cameras

The Baldinette I and II 35mm folding cameras use standard cartridges and take 24 x 36mm pictures. They measure only $1\frac{1}{2}$ in. thick when closed. The Model I has a coated 50mm, f/3.5 Baldanar lens in a sync Pronto shutter with 5 speeds up to 1/200 sec., and Bulb; the II comes with a coated f/3.5 Schneider Radionar lens and sync Prontor-SV shutter.

Both cameras feature built-in depth of field scale, self timer, double exposure prevention, exposure counter, optical viewfinder, built-in exposure guide, accessory shoe, body shutter release, and tripod socket. The camera body is all metal, with morocco grain covering and satin chrome trim. Price of Model I, \$39.95; II, \$49.95. For additional information write:

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235 FOURTH AVE., NEW YORK 3, N. Y.

La Belle Slide Projectors

Many major improvements over older models are boasted by two new models of the La Belle 2 x 2 slide projector. One of the new features of both the Model 22 (illustrated) and the 55 is the Free-Flow Selector Head, which permits showing warped or frayed slides. Both models retain the automatic slide changing feature: A flick of the finger changes slides and re-

The Berthiot coated $1\frac{1}{2}$ in. f/1.9 long focus accessory lens fits all 8mm movie cameras with "D" mounts. It has a focusing mount with a range from 2 ft. to infinity, and diaphragm stops from f/1.9 to f/16. It is made in France. Price, \$30. For more information write: Camera Specialty Co., 50 W. 29 St., New York 1, N. Y.

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NOTES ON SOLUTIONS

The following information is to assist the 35mm worker who has done little film developing. It's an extension of the processing article on pages 72 to 77.

Developers and replenishers: Instructions governing time and temperature generally accompany any developer you purchase. Each film processed decreases the strength of the developer. After the first roll, time must be increased for the second and further lengthened for the third. Sometimes directions for these increases come with the developer.

Replenishment is a more practical method of compensating for developer exhaustion. The replenisher, when added to the developer, will keep it at full strength. Such replenishers are available for most developers. To use them, merely add to the developer bottle the amount of replenisher specified, while the film is being developed. When development's over, pour the used developer back into the bottle and discard any excess that would increase the developer's original volume. This volume must be maintained. Always protect the developer against excess spillage by pouring over an empty tray. You may need this spillage to keep your developer up to the original volume.

Suggestions: Place the developer in a tightly corked brown bottle which accommodates the solution's volume exactly. Keep out of light. Use a filter funnel when pouring solutions back into the developer bottle.

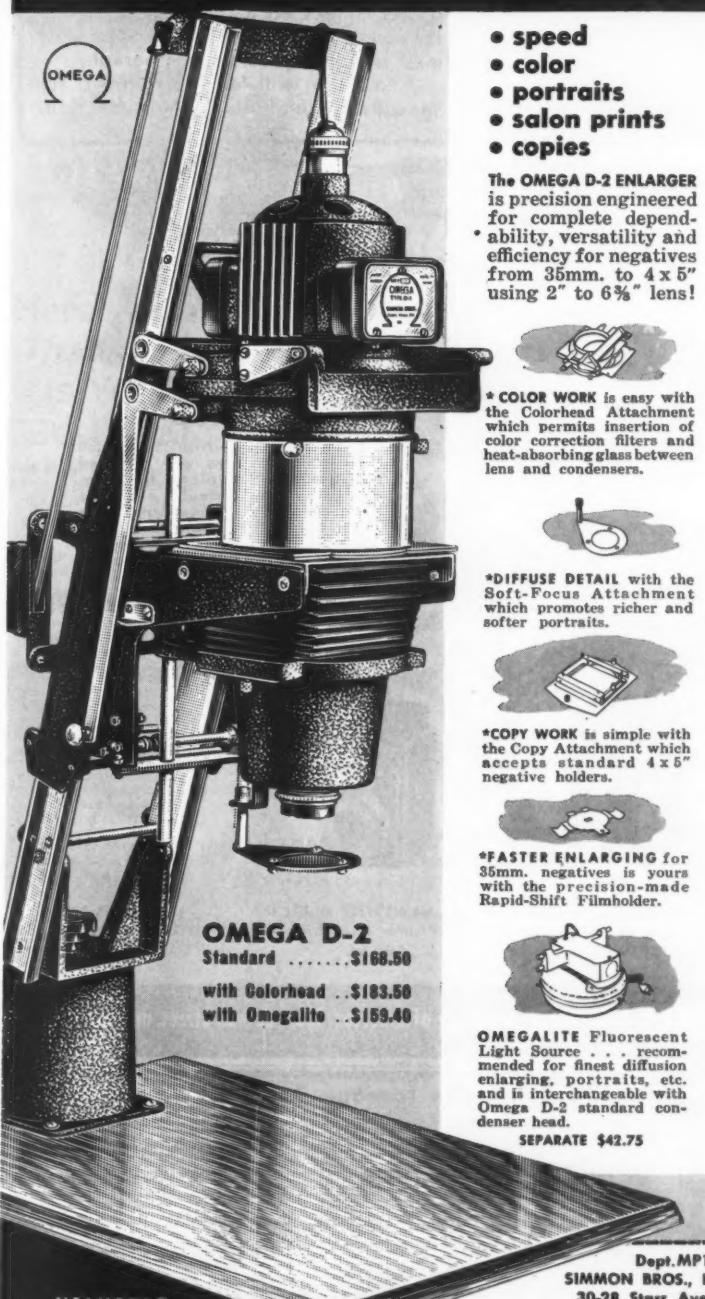
Stop baths: Many professionals use only a water bath between the developer and fixer. Some, however, prefer an acid stop bath which checks development instantly and preserves hypo life. To make such, mix 1½ oz. of 28 percent acetic acid with cold water to create a 32 oz. volume.

Fixer: Practically all fixing solutions today have hardener added which hardens the film gelatin in warm weather.

Two types of fixer are generally available—normal and rapid. The normal fixer takes longer to work than the rapid fixer. Some developer manufacturers discourage the use of rapid fixer, however.

Like developers, fixers weaken with use. To determine the proper length of time to leave film in unfresh fixer, cut a small piece from the leader of the film to be developed. Drop it into a graduate filled with the fixer and note the time necessary to clear the film of the milky white coating. The proper fixing time for your film should be exactly twice this. When the fixing time becomes more than twice that necessary when the fixer was fresh, it's time to discard the fixer and mix a new batch.—THE END

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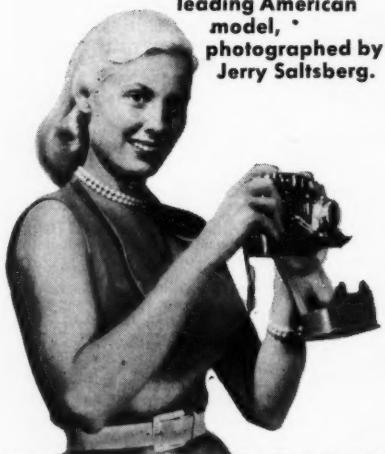
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UNDERWATER MOVIES

(Continued from page 87)

periscope is 7 3/4 x 10 inches in size; the mirror is 9 1/2 x 10 inches. When a 16mm movie camera with a 1 inch "normal" lens (or an 8mm camera with a 1/2 inch lens) is centered about 22 inches above the bottom of the periscope, the field of view covered by the lens will leave a small margin of clearance all the way around the edges of the window. A Nikon (or any other 35mm camera) fitted with an 85mm lens will cover about the same area as the normal lens of a movie camera. In building a periscope to accommodate cameras having shorter focal length lenses, remember that the shorter the focal length, the larger the window must be. Test the coverage of a lens as shown on page 88 (Fig. 6), to make certain the window is at least half an inch larger than is required all the way around so as to insure ample clearance.

When a camera is centered in position 22 inches above the bottom of the box, the lens should be focused for the distance between the subject and the mirror plus 22 inches. This will hold true in case you build a deeper periscope than mine; i.e. the focus should be set for the distance between the subject and the mirror plus the distance between the mirror and your camera lens. The images recorded by the camera will naturally be reversed (sidewise) by the mirror but this will seldom matter if your fish, seals, or models don't wear printed signs on their bikinis.—THE END

Editor's note: A free booklet, Tips On Movie Making Tricks is available from: Movie Editor, MODERN PHOTOGRAPHY, 251 Fourth Ave., New York 10, N. Y.



"That's the last time I get accused of not having original titles!"

HIGH KEY OUTDOORS

(Continued from page 60)

poor days. The little boat (*page 80*) was taken on such. It was cold, rainy and miserable weather—except for photography. In order to get the boat in my frame without piers cutting into the picture negative, I climbed over a stone wall and onto a dock marked "no trespassing." The weather was so poor, however, I doubted if anyone would stop me. I took two exposures and got in quickly out of the rain. As always, I enlarged on Varigam. But I feel this high key shot has the solitude and aloofness that I first felt about the boat when I saw it. Here again is the ordinary and commonplace that is so often overlooked in our daily living and photographing.

How it was done

Here's how a more difficult high key picture was evolved: The two figures reclining in beach chairs under the umbrella (*page 81*) were photographed on a very hazy day. I had been attempting to reduce the haze with a medium yellow filter for a previous series of pictures. However, when I saw the beach scene from the boardwalk, I removed the filter to get as diffused an effect as possible. While enlarging the negative, I dodged the foreground. The finished print still had some areas which were too dark, however. These were bleached out with Kodak Farmer's Reducer (potassium ferricyanide and hypo) applied to the area with a piece of cotton. When using Kodak Farmer's Reducer on prints, dilute your working solution 1 to 10. Small areas can be treated with a brush, larger areas with moistened cotton. When you have removed the material in the print or reduced it to the degree you wish, rinse the print in running water for fifteen minutes. This will stop the action.

Develop a system

From the pictures we've examined technically, you'll discover that a definite system can be developed for making high key photographs. First shoot against a plain background, in hazy weather or in rain. Develop normally (I usually process films by inspection in Kodak D76F but each man to his own). Then dodge out any extraneous material on the negative or use opaque. Lastly, if you need brilliant highlight where dull gray prevails or wish to reduce any dark areas still on the print, there's Farmer's Reducer.

These are the purely mechanical aspects of high key outdoors. The rest is up to your imagination—your own ability to see in high key. This ability is not an inborn characteristic. It must be developed. Once developed, it will yield quite unusual results.—THE END



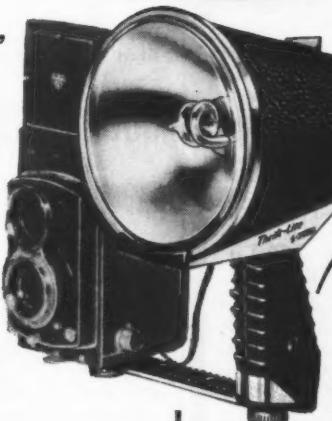
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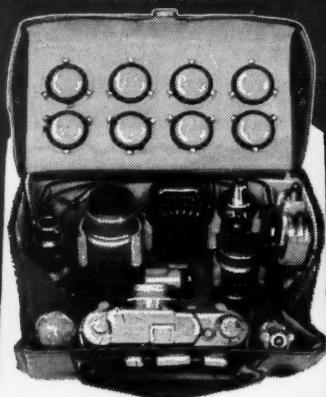
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Photo in darkened room was made entirely by light from Kissling flash button fired by flashgun mounted on Ciro-flex. Arrow shows how far flash spark flew.

MODERN TESTS KISSLING FLASH BUTTONS, NEW GERMAN SUBSTITUTE FOR FLASHBULBS

Back in the old days, when a photographer took a flash picture there was a lot more excitement to it than now. Clouds of smoke and flame, choking fumes and a bit of thunder all made it an occasion to remember.

Flashbulbs have just about removed flash powder from the contemporary American scene, except for some special uses. It seems that in Germany, however, where flashbulbs are quite expensive, a substitute has been devised—the Kissling flash button. This is a small paper capsule filled with flash powder (cost, nine cents apiece). Two copper electrodes project from the bottom of each capsule so that the capsule may be fastened by them to an adapter (\$1.95).

The adapter, in turn, fits into the standard midget flashbulb socket of a conventional flashgun. When the flashgun circuit is completed, the current ignites the flash button.

Somebody is importing the Kissling flash buttons into the U.S., so MODERN's editors decided to try them. They come in a little cardboard box. Comparison tests with black-and-white films showed that a No. 5 bulb gave about four times the light output of a button. However, the buttons are said to have the same color balance and light output as a No. 5B (blue) bulb, making them suitable for use with daylight type color films.

The buttons seemed to work. They all went off, accompanied by a pistol-like report, sheets of flame and clouds of smoke. After firing, the inside of the flashgun reflector bore a thin but complete coating of gray powder.

A flashshield over the gun stopped the flying sparks but the shield was ruined after one shot.

It was evident that extreme care should be exercised in inserting a button into a flashgun. First, the button should be put into the adapter; the latter should be grasped as shown at left, as protection in case of accidental premature discharge, and inserted in the flashgun. This is no device for children. Any photographers using it should realize that they are handling explosives.

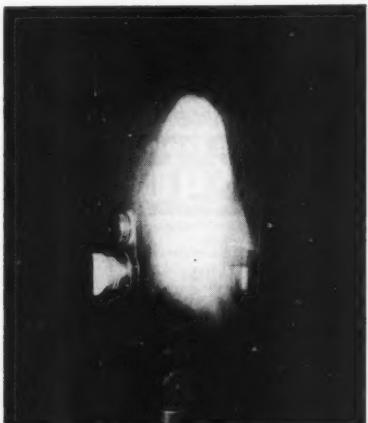
—John Wolbarst



Electrodes on bottom of tiny flash button fit into adapter, which in turn goes into a standard midget flashgun socket.



Electronic flash photo taken split second after flash button went off, left, shows smoke cloud which follows flash.



A plastic shield was placed over flash to see how effective it would be, center. Shield contained the sparks but was ruined as a result. Burn marks show clearly in center of the shield, bottom.

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SUB-MINIATURES

(Continued from page 54)

so the lenses don't have to be stopped down much in order to get things into focus. The Minox lens, for instance, stays wide open at f/3.5 all the time—exposures are varied by changing shutter speeds. With such lenses, high-speed films are not necessary, usually. Thus, the slower, fine-grained films can be used under most conditions.

Which film to use?

Any of the 35mm still films in the emulsion speed class of Ansco Supreme or Kodak Plus-X can be slit and used successfully. Actually, these are very fast films for sub-miniature cameras. For ultra fine grain work there are some very slow-speed foreign 35mm films (Agfa Isopan FF and Perutz Pergano, for example) which are available from time to time. These are suitable for extreme enlargement of pictures taken where there is plenty of light. It is also possible to get ultra fine grain with medium-speed films by rating them at half their normal speed and giving special development (see *Professional 35mm Developing*, page 72). In addition to the 35mm films described there are some little-known 16mm negative films which may be cut up into suitable lengths, or even slit. Ansco Supreme

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Exposure problems

Standardization of exposure and development techniques is desirable with all types of cameras. With sub-miniatures it's a must. Peculiarities of your shutter, lens, exposure meter and developing techniques can all add up to a rather large exposure error, or they may cancel each other out. Here's a simple check to make with your exposure meter if you are starting out with a strange camera and film.

Let's say the film is supposed to have a Weston rating of 24. Pick out an average subject under steady illumination—in the bright shade on a clear day, for instance, and take a reading with the meter. (If you want to be quite scientific, take the meter reading from a gray card—Kodak Neutral Test Card or Neutrope gray card made by Lowe Paper Co., Ridgefield, New Jersey.) Suppose the light scale on the meter indicates 250. We are simply going to ignore the manufacturer's rating of the film speed. Instead, first set your meter for a film speed of 10—make an exposure according to this setting. Then set the meter successively to 12, 16, 20, 24, 32, 40, 50 and 64, making an exposure each time. Keep a careful record of the settings for each exposure. Now, you have "bracketed" the indicated exposure, allowing for over- or under-exposure due to shutter or meter errors. This can also be done with meters calibrated for A.S.A. exposure indexes.

Develop the film carefully (more on this later) and examine the negatives. Pick out the ones which seem best exposed and in the future set your meter accordingly. There's one vital factor, however. All future films of the same make must be processed in the same kind of developer under exactly the same time-temperature conditions. Unless these conditions of standardization are kept, it will be impossible to get consistently good results.

Development problems

Very few photofinishers in this country are properly set up to do good processing of sub-miniature black-and-white films. Some of the firms importing the cameras have made special arrangements with certain processors in order to get the films done properly. This means that the film has to be returned to the importer, who then sends it out to be processed and returned to the photographer. Others offer a direct mail service to some designated photofinisher.

With few exceptions, these arrangements are far from satisfactory. Service is frequently slow and the workmanship is not all high grade. Home developing of the little films is not too difficult.

If you are using films slit from stand-
(Continued on page 116)

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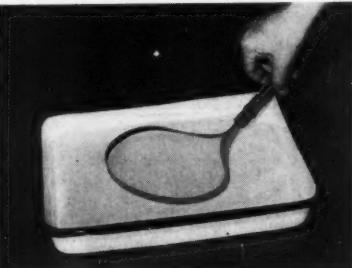
(Continued from page 115)

ard 35mm materials, the regular processing time instructions for such films will probably apply, with perhaps some modification. Avoid development to high contrast. While it is important to keep full shadow detail, the negatives should be kept on the slightly thin side, rather than letting them go dense.

Special super developers are not necessary. With the very slow, ultra fine grain films Kodak D-76, Ansco 17 or Normadol will probably do. For insuring even finer grain turn to any of the well known fine grain developers: Ansco Finex-L, Edwal Super-20, FR X-33, Kodak Microdol are some examples. With the medium-speed films, fine-grain developing is a must. Remember, however, that some of the superfine grain developers cause loss of film speed.

Developing techniques

The mechanics of processing will depend on the equipment available: 16mm developing tanks are ideal but not imperative. Simplest method, if you have a darkroom, is to develop in a tray, taping



the two ends of the short film together to form a loop with the emulsion side out.

Wetting of the film is instantaneous and complete; the film is on edge in the solution and can't be scratched easily.

My personal experience has been that constant, vigorous agitation is desirable with sub-miniature films. However, some people develop successfully with intermittent agitation. Whichever you do, stick to it consistently and adjust the developing times accordingly. Most developer packages give the different developing times required for intermittent (tank) and constant (tray) agitation.

Unless fresh developer is used each time, a replenisher system should be adopted. Extending the developing time so much for so many rolls of film does not give as consistent results as careful replenishment.

For subsequent processing steps see pages 72 and 73, as well as *Notes on Solutions*, page 109.

Making enlargements

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signed for sub-miniatures. There is a device to go with the Goerz Minicord which, combined with the camera, adds up to an enlarger. However, number of 35mm enlargers can be adapted.

A special mask must be made to cut down extraneous light. The 50mm lens should be replaced with one of shorter focal length, mounted in an inverted cone so that the lens is brought closer to the negative. A 25mm movie camera lens of good quality can serve admirably. If this is properly mounted, it can be inserted or removed from the enlarger without interfering with the focusing mechanism or the normal use of the machine for 35mm films.

Beating Newton rings

Newton rings are ghostlike little roundish patterns that turn up in the strangest places on prints. They are interference patterns and are supposed to be caused by imperfect contact between the film and the glass of the negative carrier. Films should be kept free of moisture, fingerprints and oily deposits.

Of course, with glassless negative carriers there are no Newton ring problems. However, many 35mm enlargers utilize the flat side of the condensing system glass to press the film down. Others use a flat glass pressure plate for the same purpose. With the latter design it may be possible to remove that glass plate and substitute a piece of Kodak's new Anti-Newton Ring Glass. This is a special glass, acid etched on one side, which is put between the light source and film with the etched side next to the film.

Some conclusions

Since 1940 I have been experimenting with sub-miniatures. Aside from the pleasure derived from them I have also learned how to handle my "giant" 35mm camera more proficiently. The sub-miniature may be used by the beginning amateur in much the same spirit as one uses the box camera. The advanced amateur may become interested in the precision of the well-made sub-miniature, and use it to full advantage, or he may be just plain fascinated by the gadgetry.

With the advent of the Minox and then the Gami 16 and the Minicord, we see the first really serious attempts to invade the precision field. Many of the technical difficulties which are peculiar to these tiny cameras were once common to the 4 x 5 camera, and then to the now accepted 35mm. Emulsions will be improved; optical design is advancing; mechanical tolerances are shrinking and someday may equal those of a watch.

If you have the pioneer spirit and will accept the challenge, try a sub-miniature. Someday you can tell your grandchildren how you struggled with the "early models," for they will find their place in the photographic sun.—THE END



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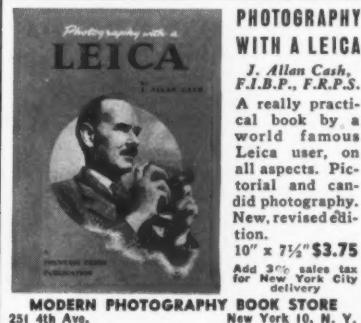
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SUB-MINIATURES

(Continued from page 57)

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6: ECHO 8, Japan. This is an 8mm camera, utilizing a slit 16mm film. The film slitter is furnished with the camera. Film is loaded into special cassettes which are readily manipulated in the dark. The cigarette lighter is functional and the entire assembly is approximately the same in size and appearance as the well known Zippo lighter. There are two shutter speeds: bulb and 1/50. Diaphragm openings of f/3.5, 5.6 and 8. The film is transported one frame at a time by turning a slightly protruding, serrated wheel. Sighting is accomplished either by means of an optical reflex finder or through an aperture in the lid. With special care, good 4 x 5 in. prints may be made from these negatives. The Echo lens is an f/3.5, 15mm. The camera is 1 1/8 x 2 3/8 x 1 1/2". Weight: 3.1 oz. Has been available.

7: STEINECK ABC, Germany. This is a post-war development, uses a circular cut film 25mm in diameter and produces six exposures of 6mm diameter format. The lens is f/2.5, 12.5mm and is fixed focus. Shutter speed is 1/50 sec. The finder is a reflection type and the camera was designed to be worn as a watch. The special cassette carrying the film is rotated, thus bringing successive negatives in position with the lens. The high cost of this camera, in addition to the operational disadvantages, places it in the novelty class. It has been avail. in U.S. Size: 1 3/4 x 1 1/8 x 3/4 in.; weighs 1.1 oz.

8: BINOMA, Japan. It is a 16mm sport camera incorporating a 40mm f/4.5 lens and camera arrangement located between two adjustable Galileo type telescopes. Magnification is approximately 2.5X. The interpupillary distance is fixed. Each eye piece may be individually focused. The film is cassette loaded and the format is 10 x 10mm. The body of the camera is fabricated of a white plastic. This camera is attractive in appearance and is usable for sports, but it is not meant to compete with the precision miniature with telephoto lens. The prints are suitable for album use. The shutter operates on bulb, 1/25, 1/50, 1/100 sec. An exposure counter is situated on the top of the camera. Size: 3 3/4 x 3 x 1". Weight: 8.7 oz. Has been available in U.S.

9: GEMMY, Japan. It comes equipped with an f/4.5, 25mm lens and is cassette loaded. The negative size is 12 x 12mm on 16mm film. The film is advanced, the shutter cocked and film exposed by means of one single operation. The camera is held as a gun and the actuation

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accomplished by means of the trigger. The field of view is approximated by aligning the sights on the gun barrel. The carrying case is a leather holster. Shutter speeds are 1/25, 1/50, 1/100 sec. Diaphragm selections are f/4.5, 6.3, 8 and 11. The camera will permit enlargements of 10X. Size: 4 x 3 1/4 x 1 1/4 in. Weight: 9.2 oz. Available in Japan.

34: PETAL, Japan. Utilizes a circular cut film 22mm in diameter and permits a circular format 5mm in diameter. The lens is approximately 12mm focal length. Advertised as a portrait camera by the manufacturer. The lens is fixed focus and seems to give best result about 5 to 10 ft. from the subject. The Petal is easily carried in the pocket. Strictly a novelty item, one shutter speed (1/50) and a fixed diaphragm (f/8). Film is inserted into a flat cassette which has a light trap over the exposure area (6 exposures per cassette). Camera may be daylight loaded. The finder is an optical one and the shutter release is conveniently located on the upper side of the camera. Size of the Petal is 5/8 x 1 1/2"; weighs 2.1 oz. Has been avail. in U.S.

35: GASTRO-PHOTOR (Stomach camera), U.S. Solely for medical photography. The camera consists basically of a tubular housing. A divided compartment on one end houses four separate pieces of film. Also located in this end of the housing are four pairs of pinholes (f/90). The other end of the capsule is a framework enclosed in a glass sleeve. In this glass sleeve is a .1mm diameter tungsten wire. The exposure is effected by applying an electric current to this wire, causing it to explode and to emit light at approximately 1/100 sec. It is a one shot deal; both the wire and the film must be replaced for each shooting. Four pairs of stereo photographs are made simultaneously. The film capsule must be loaded in the dark and kept dark until swallowed by the patient. After exposure, the camera is pulled up from the stomach and reloaded. Photographs taken with this camera have proved of value in medical diagnosis. Each negative is approximately 3mm in diameter. The entire camera may be placed in boiling water and sterilized. This camera is 3/8 x 2 in. Weight: .2 oz. Available.

Miscellaneous

2: RUBIX II, Japan. 16mm film, 10 x 14mm format, f/2.8, 25mm lens, shutter speeds, bulb, 1/25, 1/50, 1/100, focus fixed. Has been available.

3: MYCRO, Japan. 16mm film, 14 x 14mm format, lens f/4.5, 20mm, shutter speeds bulb, 1/25, 1/50, 1/100, fixed focus. Has been available.

4: MIGHTY, Japan. 16mm film, 14 x 14mm format, telephoto lens f/3.5, 40mm (accessory lens added to normal

lens), shutter speed 1/50, fixed focus. Has been available.

10: WHITTAKER MICRO 16, U.S. 16mm film, format 15 x 15mm, shutter speeds 1/50, approximately 25mm lens, fixed focus, diaphragm control, "color," dull and bright. Has been available.

11: TYNAR, U.S. 16mm film, format 10 x 15mm, shutter speed, 1/50, lens approximately 30mm, f/6.3, diaphragm control (Waterhouse Stops), fixed focus, sport finder. Has been available.

12: MINUTE 16, U.S. 16mm film, format 12 x 14mm, shutter speed, 1/50, lens approximately 30mm f/6.3, sport finder, built-in flash synchronizer, fixed focus. Has been available.

13: POPPY, Japan. 16mm film, format 13.5 x 13.5mm, shutter speeds bulb, 1/25, 1/50, 1/100, focusing 3 ft. to inf., lens f/2.8, 25mm. Not avail. in U.S.

14: HOLLOW, Japan. 16mm film, format 14 x 14mm, lens f/8, 20mm, fixed focus, shutter 1/50. Not avail. in U.S.

15: PIXIE, U.S. 16mm, format 9 x 12mm, shutter speed 1/50, fixed focus, f value "color," dull and bright, lens approximately 15mm focal length. Has been available.

23: ROCKET, Japan. 16mm film, format 14 x 14mm, optical finder, fixed focus, f/4.5 lens, 20mm, shutter speed 1/50. Not available in U.S.

24: SCAT, Italy. 16mm film, format 9 x 9mm, lens f/3.5, 25mm, shutter speed 1/50, focuses from 1 meter to infinity. No diaphragm. Not available in U.S.

26: MINIFEX, Germany. 16mm film, format 13 x 18mm, 25mm f/3.5 lens, front element focusing down to .3 meters, shutter 1 sec. to 1/300. Not available.

27: KALOS, Germany. 16mm film, format 9 x 12mm, lens f/4.5, 20mm, fixed focus, shutter speeds, bulb, 1/30, 1/50, 1/100 sec. Has been available.

29: GEMFLEX, Japan. 16mm film, format 14 x 14mm, lens f/3.5, 25mm, self-erecting hood, gives appearance of a miniature Rolleiflex, shutter speeds bulb, 1/25, 1/50, 1/100 sec., fixed focus. Has been available in U.S.

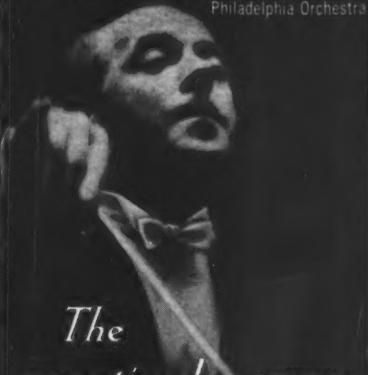
30: STEKY, Japan. 16mm film, format 12 x 13mm, fixed focus, f/3.5, 25mm lens, shutter speeds bulb, 1/25, 1/50, 1/100 sec. or may be obtained with an f/5.6, 40mm telephoto. Has been avail.

31: SHOLY-FLEX, Japan. 16mm film, format 11 x 11mm, lens 20mm, f/5.6, matched viewing lens, 1/50 sec. shutter speed, fixed focus. Not available in U.S.

32: RUBIX I, Japan. 16mm film, format 10 x 14mm, lens f/3.5, 25mm, front element focusing, shutter speeds bulb, 1/25, 1/50, 1/100 sec. Has been available.

33: VESTCAM, Japan. 16mm film, format 14 x 14mm, lens 20mm, f/4.5, shutter speed setting bulb, #1 and #2, fixed focus. Has been available.

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What's Ahead?

by LLOYD E. VARDEN



What are "unnatural colors"? What are their artistic possibilities for the photographer?

The general idea behind most color photographic processes is the reproduction of scenes as lifelike or as "natural" as possible. Sometimes the intermediate steps in a process may yield a color image that is neither a natural color positive nor a "complementary" negative image, but when the image is finally printed the result is not unlike the final image of other processes.

Nevertheless, there are photographic color processes in which the final result bears no resemblance to the original.

When one thinks of a radiograph or "X-ray" he invariably pictures a black-and-white image. X-rays, being invisible, are never thought of in terms of color. However, X-rays do have a range of wavelengths, and a range that is wider than that of visible light. These wavelengths are absorbed to a greater or lesser extent, just as are visible wavelengths, according to the nature of the absorbing substance and its thickness. Therefore, if a photographic material is produced that has emulsion layers which differentially respond according to the wavelengths of the X-rays, these emulsions can be processed to form a color image.

The color image is entirely false and "unnatural" but it can serve to make it easier to distinguish various types and thicknesses of tissue.

Ultraviolet color photography

Another unnatural color process is the so-called ultraviolet color translation method. It is in no way different from that employed for color radiographs, except that different wavelengths of invisible ultraviolet radiation are used. It so happens that many substances differentially absorb ultraviolet rays of different wavelengths, and so the structure of a complex body containing a variety of substances can be shown in terms of color differences in keeping with this ultraviolet absorbing property. For doing this, it is necessary to use separate films for each band of U.V. recorded, as in making three-color separation negatives for "natural" color photography. Ultraviolet radiation is so readily absorbed by a gelatin layer that if a multilayer emulsion were employed the top emulsion would prevent the lower emulsions from becoming exposed. Once the U.V. separation negatives are completed,

any number of procedures can be used to form a color image from them.

Camouflaged detection film

During the war another application of unnatural color photography came into being. The film used was an especially sensitized infrared multilayer material that contained color formers in the emulsions. Since infrared radiation is freely reflected by natural green foliage and very poorly reflected by green paints, it was possible to obtain on the special film a "color" image that visually separated the natural greens and painted greens.

Possible use of unnatural color

The modern artist has not been hide-bound by convention, and so it is not uncommon to see horses painted blue, cows pink and rosebuds green in a modern art exhibit. Photographers have used abnormal lighting conditions to falsify colors within a scene, too, but it is always apparent in such color photographs that red illumination, for example, has been used on one side and green light on the other. Gray objects do not remain gray, but take on the hue of the illumination. The scene overall takes on the particular color of the illumination, and so there is no particular novelty apparent.

However, color processes can be applied so that gray objects will record gray, whereas colored objects reproduce in an altogether different color. To see the principle involved one has only to imagine a regular multilayer color film like Ansco Color or Ektachrome in which the color formers are placed in the layer in an improper way. The normal relationship is for the yellow color former to be in the blue recording layer, the magenta former to be in the green recording layer and the cyan former to be in the red recording layer. This arrangement is necessary for "natural" color reproduction. However, even if the yellow color former were in the green recording layer, with the magenta former in the red recording layer and the cyan color former in the blue recording layer, the film would still record gray objects as gray, in spite of the fact that other colors would reproduce falsely.

In dye-transfer printing a relationship of this sort is easily accomplished. It is only necessary to dye the printing matrices in the wrong dyes before the transfer step. It would not be neces-

(Continued on page 122)

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CORRECTION: ON THE BUTTON!

An error occurred in the August issue of MODERN, in the article *On the Button!* by Charles Hellman.

This article was concerned with correct use of exposure meters and in one section Mr. Hellman demonstrated how proper use of the reflected light meter will give maximum film speed and latitude. After describing the use of the "O" and "U" scale of the Weston meter, he went on to explain how the same effect could be had with exposure meters which did not have an "O" and "U" scale. "Take a normal reading for the darkest part of the subject. Divide this reading by ten. Set the normal arrow to this reduced setting. Minimum correct exposures will result."

This should have read, "Take a normal reading for the darkest part of the subject. Set the normal arrow to the setting indicated and get the recommended shutter speed. Divide the indicated exposure by ten. (That is, if 1/10 sec. is indicated, expose at 1/100 sec.) Minimum correct exposures will result."

In discussing the "O" scale the text stated, "For meters without O scale take a highlight reading. Multiply it by ten, turn the arrow to this setting." This should have read, "For meters without O scale, take a normal reading for the brightest important part of the subject. Set the normal arrow to the setting indicated and get the recommended shutter speed. Multiply the indicated exposure by ten. (That is, if 1/100 sec. is indicated expose at 1/10 sec.) Maximum correct exposure for the highlights will result. Parts of the subject less bright—down to 1/130 as bright—will be adequately exposed."

WHAT'S AHEAD

(Continued from page 121)

sary to completely alter the normal situation. For example, the yellow dyed matrix could be the one from the blue separation negative, and only the magenta and cyan dyed matrices could be reversed. In this case, grays and yellows would be reproduced correctly, with other colors being thrown off normal hue. It is obvious that other arrangements are possible.

By keeping at least one hue and all grays (including white and blacks) as they should be, and altering other colors the final picture is a valid reproduction in some areas and false in others. This produces different effects from merely flooding a scene with improper illumination.—THE END

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(Continued from page 71)

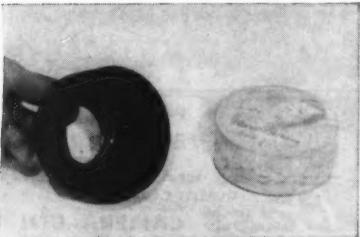
imposed by the mechanics of the camera, I have come to recognize how creative an instrument it really is. Rather than being used as a substitute for painting, photography now emerges a separate and provocative new medium of self-expression, its product no second brother to painting or to any other art form.

With this in mind, it was natural that my approach be both independent and toward some personal goal of satisfaction. I did not have to work within the limits of commercial assignments and I knew nothing of the rules for salon acceptance. For me the world of color and black-and-white images was and is multi-phased. There are times of excitement, of nostalgia, of drama, and even of play. There are moods and soft statements of subtlety that can be sneaked up on and recorded. There are loud cracklings of hot primary colors that bang against each other and spell out joy—the joy of a man walking full in the light of day. There are related forms that work together in a dance of design and movement. To me the fragment speaks of life as delicately or as harshly as a recognizable person or object. But I do not set up rules of approach for others or myself. I shoot people, events, bits of wood and sand, all things that

(Continued on next page)

HOW TO DO IT

A spare lens shade for your camera can quickly be made from the lid of a discarded face powder box. First, remove the insert from your adapter ring and use it as a guide for tracing a circle on the top of the lid, being careful to



center it accurately. After cutting out this circle, place the insert of the ring in the opening and screw on the flange of the ring so that the cardboard is held securely between the two metal parts. Finish the inside of the shade dull black with India ink, or by taping with opaque photo tape.—John Rea

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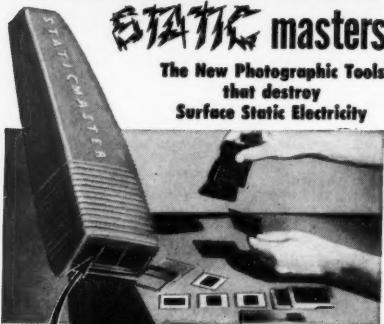
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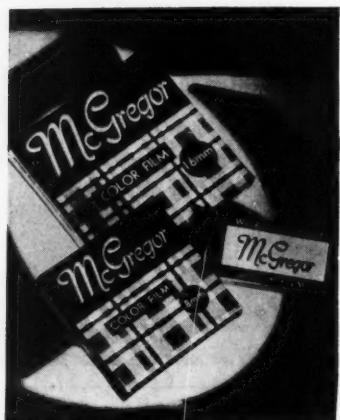
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BALISH

(Continued from page 123)

touch me or that have meaning to my senses. I look at things that others would not have me look upon, I see beauty where some see ugliness and ugliness where the acceptable view is beauty. My approach is simply one of seeing and relating myself to what I have observed. To record these images, or fancies if the case may be, spells out for me satisfaction and enjoyment, for in all things a bit of life's meaning and plan can be seen. What better thing is there to know than that, at some time or other, you have been able to capture, or if nothing more sense, the reality and the greatness of the world around you?—THE END

Technical notes on pictures by Leonard Balish, pages 67-70.

Watermelon, page 67. Taken in the marketplace at Toluca, under the shade of an overhanging canopy. Leica, 50mm Summarit lens, Kodachrome, f/4, 1/30 sec.

Window, page 68. Photographer exposed for dense area behind screen, to bring out detail hidden in shade. The day was hazy and light flat. Leica, 50mm Summarit, Kodachrome, f/2.8, 1/20 sec.

Surfboards, page 68. With full bright sun overhead, exposure was made to burn out texture of sand, concentrate on surfboard patterns. Leica, 50mm Summarit, Kodachrome, f/5.6, 1/100 sec.

Carriage wheels, page 69. Taken with a Rolleiflex, cropped by the photographer to a 35mm format. Light was from late-afternoon sun which gave additional warmth to yellows and reds. Ektachrome, f/5.6, 1/75 sec.

Flowerpots, page 69. Flowerpots in enclosed market stall were taken to play precise linearity of their forms against subtlety of leaves. Exposure for detail: Leica, 50mm Summarit, Kodachrome, f/2.8, 1/20 sec.

Autumn leaves, page 70. Leaves were found in the open sunlight of an early afternoon. There was about 50 feet between leaves and blue water. Wind was moving leaves so exposure was fast to stop their motion. Leica, 135mm Hektor, Kodachrome, f/4.5, 1/100 sec.

Lantern, page 70. Very overcast day, murky mood. Leica, 135 mm Hektor lens, Kodachrome, f/4.5, 1/30 sec.

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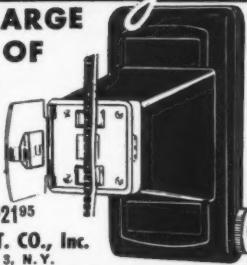
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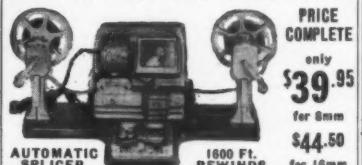
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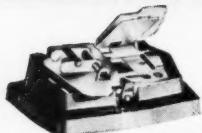
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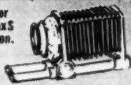
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